

Amateur Radio

VOL. 50, No. 12 DECEMBER 1982

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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amateur radio

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and reserves the right to refuse acceptance of any material, without specifying a reason. Material should be sent direct to P.O. Box 100, Toorak, Vic. 3142, by the 25th of the second month preceding publication. Phone: (03) 528 5952. Hamads should be sent direct to the same address by the 1st of the month preceding publication.

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on the cover



L to R: Barry VK4BK, Geoff VK4AG, Guy VK4ZZZ, Roger VK4XIE at the AX40CG console during the Commonwealth Games. Photo courtesy: David VK4NLV



WIA NEWS

WCY83

The Prime Minister, Mr Fraser, has agreed that DOC will be Australia's lead agency for the year.

Mr Alan Gunter, First Assistant Secretary, has been appointed as officer-in-charge of WCY83 operations.

REVISED POLICY

Following the recent meeting between the Wireless Institute of Australia and the Department of Communications, the existing policy in respect to the allotting and reservation of a call sign for use by an amateur station has now been reviewed.

In future, where a call sign is cancelled in the event of the death of the holder, that call sign will be reserved for a period of two years.

When a call sign is cancelled for any other reason, it will no longer be reserved and will therefore be available for immediate reallocation to a new amateur station.

In exceptional circumstances, i.e. where an amateur can satisfy the Department that he will be temporarily overseas or interstate in his employment but intends to return to his original address, the amateur's call sign may be reserved, at the State Manager's discretion.

The Amateur Operator's Handbook will be amended in due course to reflect the abovementioned policy changes.

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INTERNATIONAL NEWS

AUSTRALIAN ELECTED SECRETARY-GENERAL OF ITU

At a meeting in Nairobi on 7 October, 1982, Australian Mr Richard E. Butler was elected Secretary-General of the International Telecommunication Union. He has previously held the position of Deputy Secretary-General since 1968.

Prior to his election as Deputy Secretary-General, Mr Butler occupied various senior posts in the Australian Telecommunication Administration.

Mr Butler was a deputy leader of Australian delegations to major UN and ITU Conferences, as well as participating in the work of the Administrative Council and various study groups.

NEW DEPUTY SECRETARY-GENERAL OF THE ITU

On 11 October, 1982, Mr Jean Jigues, from Cameroon, was elected as the Deputy Secretary-General of the International Telecommunication Union.

Mr Jigues has been very active with the ITU since 1973 and has also been a prime mover in the development of telecommunications in Cameroon.

FROM INDIA

VU stations are now permitted to use a 50 kHz segment in the 80m band (3.500-3.540 and 3.890-3.900 MHz).

FROM THE PHILIPPINES

The PARA Board approved plans for celebrating PARA's golden year in 1982 which culminated in a grand celebration on its birthdate, 27 November.

There was a dinner with show, raffles and prizes organised by Cesar DUJAMO. Cesar also

chaired the successful PARA Golden Night held 5 April 1982, at the Century Park Sheraton Hotel, closing the IARU Region III Conference in Manila.

Other events held this year were public display of amateur radio called "Talk to the Philippines"; to arouse and enlighten public awareness to the hobby, distribution of institutional awards to deserving amateurs, and the use of a special call sign prefix — 4D.

FROM HONG KONG

Two beacons operate from Hong Kong:—
VS6TEN 28.290 MHz A1A
10 watts RF into A ¼ wave ground plane.
VS6SIX 50.075 MHz A1A
10 watts RF into A ½ wave ground plane.

IARU REGION III AWARD

The NZART has been chosen by the Region III Association to administer this award. The rules for the award as announced by NZART are:

1. It is available to licensed operators and SWLs.
2. Contacts made after 5th April, 1982 are eligible, but certificates will date from 1st January, 1983, as part of World Communications Year.
3. QSL cards are not required. Send a certified list of eligible contacts from log book.
4. The cost is \$1 surface (\$2 airmail) to defray postage and packing.
5. The basic award requires contacts with seven of the eligible countries. A Silver Star endorsement requires twelve countries and a Gold Star endorsement requires seventeen countries.
6. Awards may be endorsed for any mode or band.
7. Eligible countries are: Japan, Australia, New Zealand, Korea, Philippines, Hong Kong, Thailand, Papua New Guinea, Singapore, Fi-

ji, India, Indonesia, Malaysia, Sri Lanka, Tonga, Western Samoa, Solomon Islands, Bangladesh.

8. Applications to NZART Awards Manager, 152 Lytton Road, Gisborne, New Zealand.

NEW MEMBER

After the closing of postal vote MEM-9 which had been requested to the IARU Region III Association Member Societies not represented at the Fifth Regional Conference, the Secretary declared on July 2 last that the Bangladesh Amateur Radio League (BARL) was admitted to membership in the Association.

The BARL is the eighteenth member society of the Association, and surely the Directors, Secretary and Members of the Association warmly welcome this new member to our organisation.

REGION III SECRETARIAT OPENED IN TOKYO

As a result of the decisions made by the Region III Conference in Manila, the secretariat of the IARU Region III Association was moved from Singapore to Tokyo, Japan, effective from April 20, 1982.

After necessary arrangements, the new Secretariat was opened at the place as mentioned below on June 2, last.

Postal Address:
Masayoshi Fujioka, JM1UXU
Secretary — IARU Region III Association
PO Box 73, Toshima, Tokyo 170-91, JAPAN

Location:
Daini (No. 2) Matsuoaka Bld.,
14-6, Sugamo 1-Chrome, Toshima-Ku,
Tokyo 170, JAPAN

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SUPPORT YOUR FELLOW AMATEUR

Another year draws to a close, a year filled with so many events in our world of amateur radio.

Just what 1983 holds, remains to be seen, although it is only too obvious that Australia's immediate economic outlook appears gloomy. There is little doubt that many primary and secondary industries are facing significant problems, which in turn, are generating unemployment and other difficulties. To date, tertiary employment appears to have been insulated to a large extent from these traumas.

Unlike governments, the Institute does not have a "CAPTIVE AUDIENCE"! You must pay your local council rates and government taxes or pay the consequences. In the case of the Institute, you do not have to belong — you do have a choice and in these trying times it is unfortunate that some amateurs may be unable to continue membership.

However, the work of the Institute must continue, for it is often during times of economic hardship that the promoters of new schemes and money making ventures are heard.

Maybe cable television fits within this category. I don't hear too many members of the public DEMANDING such a service, yet it would appear that the "service" will be introduced. Sure, it could create additional employment and, hopefully, only the user will pay, not all of us through increased charges for goods and services.

But of even more importance is the likely effect of cable TV on amateur radio — that is, if experience from overseas is any indication THE INSTITUTE MUST REMAIN VIGILANT AND IT MUST HAVE THE RESOURCES TO DO SO.

I sincerely hope that your choice is to renew membership or to join the WIA. YOUR FELLOW AMATEUR NEEDS YOUR SUPPORT.

Whilst on the subject of support, I would like to thank the many amateurs who have gone out of their way to show their appreciation for the work done by the various WIA officers and in particular the magazine team, for their efforts during this year. The year has seen the Institute and Amateur Radio's image enhanced in many areas.

On behalf of the executive officers of the Institute and the Federal office staff, I wish you all a happy and safe Christmas and a prosperous New Year.

Peter Wollenden, VK3KAU
Federal President.

AB

WIA DIRECTORY

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P.O. Box 150, Toorak, Vic. 3142.

AUSTRALIAN CAPITAL TERRITORY:

President — Mr. W. R. (Bill) Maxwell, VK1MX.

Secretary — Mr. Richard B. Jenkins, VK1UE.

Broadcasts — 3.570 MHz and 2metre Channel 6950 at 20:00 hours.

General Meetings — Fourth Monday of the month.

NEW SOUTH WALES:

President — Ms. Susan J. Brown, VK2BSB.

Secretary — Mr. Athol D. Tilley, VK2BAD.

Broadcasts — 11:00 and 19:30 hours.

Frequencies bracketed at 11:00 only.

Frequencies: 11.8125, 1.825, 13.585, 3.595, (7.146), 28.320, 52.120,

52.525, 144.120 MHz.

6850 Wollongong, 7000 Sydney, (7100 Westlake), 8525 Sydney.

VICTORIA:

President — Mr. Alan R. Noble, VK3BBM.

Secretary — Mr. Des J. Clarke, VK3DES.

Broadcasts — 1.840, 3.600, 7.135, 53.032 (AM), 144.2 (USB) MHz

and 2metre Channel 2 (S) repeater at 10:30 hours.

General Meetings — Second Wednesday of each month at 20:00

hours.

QUEENSLAND:

President — Mr. Guy D. Minter, VK4ZXZ.

Secretary — Mr. Fred J. Saunders, VK4AFJ.

Broadcasts — 1.825, 3.580, 7.120, 14.342, 21.175, 28.400 MHz.

Repeater: Channel 6700 and 7000 at 09:00 hours.

Re-broadcasts — 3.605 MHz on Mondays at 19:30 hours and 20m

RTTY at 20:00 hours.

General Meetings — Third Friday of each month at 19:30 hours.

SOUTH AUSTRALIA:

President — Mr. W. M. (Bill) Wardrop, VK5AWM.

Secretary — Mr. David M. Clegg, VK5AMK.

Broadcasts — 1.850, 3.550, 7.095, 14.175, 21.195, 28.470, 53.1 MHz.

Repeater: Channel 7000 at 09:00 hours.

General Meeting — Fourth Tuesday of each month at 19:30 hours.

WESTERN AUSTRALIA:

President — Mr. Bruce Hedland-Thomas, VK6OO.

Secretary — Mr. Fred Parsonage, VK6PF.

Broadcasts — 3.560, 7.050, 14.100, 14.175, 28.470, 53.1 MHz. 2

metres: Channel 2 Perth, Channel 2 Wagin at 09:30 hours.

General Meetings — Third Tuesday of each month.

TASMANIA:

President — Mr. Lloyd Cherry, VK7BF.

Secretary — Mr. Peter Clark, VK7PC.

Broadcasts — 7.130 MHz SSB with relays on 6 and 2 metres Channel 2

(south), Channel 8 (north), Channel 3 (north-west), at 09:30 hours.

NORTHERN TERRITORY:

President — Mr. Terry A. Hine, VK8NTA.

Vice-President — Mr. Barry Burns, VK8DI.

Secretary — Mr. Robert Milliken, VK8NRM.

Broadcasts — Relay of VK5WI on 3.555 MHz, and on 146.5 MHz, at

09:30 hours. Slow morse transmission by VK8HTA on 3.555 MHz at

10:00 hours almost every day.

POSTAL INFORMATION:

VK1 — P.O. Box 46, Canberra, 2600. Phone (062) 41 3889.

VK2 — P.O. Box 1066, Parramatta, 2150. 109 Wigram Street,

Parramatta. Phone (02) 689 2417. Dural during B'casts only Phone

561 1480.

VK3 — 412 Brunswick Street, Fitzroy, 3065. Phone (03) 417 3535

from 10:00 to 15:00 hours weekdays.

VK4 — G.P.O. Box 638 Brisbane, 4001. Phone (07) 349 7768.

VK5 — G.P.O. Box 1234, Adelaide, 5001. West Thebarton Road,

Thebarton. Phone (08) 352 3428.

VK6 — G.P.O. Box 10, West Perth, 6005.

VK7 — P.O. Box 1010, Launceston, 7250.

VK8 — (included with VK5). Darwin Amateur Radio Club, P.O. Box

37317, Winnellie, Northern Territory, 5789.

SLOW MORSE TRANSMISSIONS:

Most week day evenings from about 09:30 UTC onwards around 3.550 MHz.

VK QSL BUREAUX:

The following official list of VK QSL Bureaus has all inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.

VK2 — QSL Bureau, P.O. Box 73, Terailba, N.S.W. 2284.

VK3 — Inwards QSL Bureau, Mrs. Barbara Gray, VK3BYK, 1 Amery

Street, Ashburnton, Vic. 3147.

VK3 — Outwards QSL Bureau, Mr. Des Clark, VK3DES, C/o VK3

Rooms.

VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld. 4001.

VK5 — QSL Bureau, Mr. Ray Dobson, VK5DI, 16 Howden Road,

Fulham, S.A. 5024.

VK6 — QSL Bureau, Mr. Jim Rumble, VK6RU, G.P.O. Box F319,

Perth, W.A. 6001.

VK7 — QSL Bureau, G.P.O. Box 3710, Hobart, Tas. 7001.

VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.

VK9 & 0 — Federal QSL Bureau, Mr. Neil Penfold, VK6NE, 38B Hun-

triss Road, Woodlands, W.A. 6018.

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VK7 — Mr. Ivan Ling, VK7XL.



Amateur Radio's Golden Jubilee



YES THAT'S RIGHT! How many of you have noticed the Volume No. on all of this year's 'Amateur Radio' magazines? Well for those of you who haven't noticed, this is our 50th year of publication. The first issue of *Amateur Radio* was published in October 1933, and our actual BIRTHDAY is not until October 1933. In publishing circles however, because the first year's publication is always noted as No. 1, we therefore have entered our 50th year of publication. This is really a tremendous milestone in our history.

The cover of this first issue is printed herewith, together with the editorial for that issue — read through it — haven't things changed? (or have they?) The first issue contained just twenty four pages and carried a cover price of 8 pence (2 cents). Today AR does not quote a cover price, not because we might consider it 'PRICELESS', but for certain technical and legal reasons.

The publications committee consisted of all volunteers — just like today, except our production has, of necessity, gone commercial, to alleviate the increasing load being borne by our volunteers.

Some of the early volunteers are still alive today, and next year we hope to bring you a story about them. I hope the changes in AR over the years have been to the benefit of our hobby, *Amateur Radio*, and as always, AR will continue to have just one basic theme — "AN INFORMATION SERVICE AND FORUM FOR OUR MEMBERS, AND AN AVENUE TO PROJECT YOUR IDEAS AND EXPERIMENTS TO OTHERS OF A SIMILAR INTEREST."

We have not listed fifty publication years without your support, and I trust we will retain it for many years to come.

I guess no-one will object if I propose toast, on your behalf, to your magazine 'Amateur Radio', and say just this: "HAPPY BIRTHDAY AR, LONG MAY YOU SERVE THE MEMBERS OF THE SWA."

Bruce Smith, VK3ZD
Editor

With this, the first issue of "Amateur Radio," a long-felt want is being satisfied. It is a cry from our old Magazine which appeared in 1921 to the present time, and during the intervening years, many and varied attempts have been made to offer the army of radio enthusiasts in Australia something worth which would be of real interest, value and help. It is the intention of the magazine committee, the council, and all concerned, to see that every section of our vast radio community is catered for in these pages. With that object in view, pithy news of general interest will regularly find space in its pages. To all members of the W.I.A., especially those of the Victorian Division, the R.A.A.F.W. Reserve, and all radio enthusiasts, we confidently look for wholehearted support in this undertaking.

This magazine is the official organ of the Victorian Division, every financial member of which will receive a copy post free, and every Ham should see that they receive one. We have in Victoria approximately 300 members and three affiliated clubs, but there are quite a number of holders of the A.O.P.C. who have not yet enrolled. In view of the fact that the officials of the Institute do an enormous amount of work voluntarily (not only in the interests of our members but also of the non-members), it is not in keeping with the Ham spirit to take a share of the advantages which the other fellows' fees and energy provide. Our ranks are open to anyone who is genuinely interested in the science of Wireless, irrespective of their knowledge of the subject, and a hearty welcome is assured to all members with a definite promise of assistance and help, in any desired direction within our scope.

The country experimenter will now be in closer touch with the city enthusiasts and will be kept informed of all Institute activities right up to the minute.

The Institute, in a general sense, is divided into four sections, the most of which is to be formed later. Of these, the chief is, of course, the Executive, known as the Council, which consists of the President, Secretary, Treasurer and ten full members elected annually, whose duty it is to shape the destiny of the Division, control its funds and do all such acts and deeds which are essential for the successful functioning of the whole, within the limits of the constitution.

The Short Wave Group, which is the latest section, is devoted to the Experimental side of short wave transmitting and receiving, and much good work is being done by this very enthusiastic body.

The "Key" Section, probably the largest numerically of all the sections, is a very active group whose work largely constitutes filling the atmosphere with "dits and dahs", burning much midnight Yallourn energy, and in general communication with the uttermost ends of the earth, with as low power as possible. It is largely from this group that the Royal Australian Air Force Wireless Reserve was recruited, and so successful has been the experiment, that it has now been officially accepted as an indispensable unit of our country's Defence Forces. The "Key" Section is largely responsible, in conjunction with other Amateurs of the move over, for the successful pioneering of the many frequencies or wavelengths which were at one time considered impossible, but which are now in general use.

The Telephone Section, which is undoubtedly the best known to the general body of listeners, is also very lively, energetic and enthusiastic. Their work generally needs no amplification — the very high standard of their transmissions, excellent arrangement of programmes from a purely listener's viewpoint and the high entertainment value of their labours, are a real asset not only to the W.I.A., but to the Government and the Radio Trade generally. There are 22 Stations and 24 Metropolitan Amateur Stations actively engaged in entertaining listeners during nonbroadcast hours on week nights and Sundays. In many cases in the country, they provide the only programmes that can be received decently owing to atmospheric conditions, particularly during daylight.

Mention should be made of the **Technical Development Section**, a small committee of highly trained technicians who control the Instrument Library of the Institute, and who are always ready and willing to offer the benefit of their greater knowledge to their less advanced fellow members.

The possible fifth section to be known as the Super Het Club, depends largely upon the public response to the suggestion and, if formed, will be open to everyone. Interesting competitions with valuable prizes for the logging of distant stations, advice on constructing efficient receivers, short

wave converters, interesting lectures, a portion of this magazine devoted entirely to their interests, participation in our social life, and a host of other interesting and entertaining features will be arranged, the cost being practically reduced to subscription to this publication.

There is several hundred pounds worth of highly efficient gear, such as broadcast and short wave transmitters and receivers, meters of all kinds and technical publications at the disposal of our members and it is the earnest desire of the Council that the fullest possible use be made of them.

This first editorial would not be complete without reference to the wonderful assistance and courteous consideration that we have received from the Department of the Chief Inspector of Wireless at all times. To Mr. J. Malone and his staff, Messrs. Martin, Dobbin, Conry, Greig and Dunne, do we express our cordial greetings and thanks.

We have every confidence that, in this journal, our many transmitting and receiving radio friends will find news of interest of other people's doings and at the same time have a forum in which to place their own ideas pertaining to Amateur Radio.

THE EDITOR'S CQ.

Our President has introduced us in no uncertain manner. Concise, without any "padding", he has laid bare the workings of the W.I.A. To him we offer our sincere thanks: to our members, for their approval, we offer "Amateur Radio".

With this first issue, it is most necessary to mention our various advertising friends. These people are the very life blood of "Amateur Radio", inasmuch as their dues in no small way contribute to allying our printing costs. You can believe us when we tell you that selling advertising space is no easy matter.

We appeal to you to support our advertisers, and when you buy any parts to make that new set, we want you to mention that you saw their ad. in "Amateur Radio", thus making Goodwill for the magazine with the surety of renewal of contracts. We cannot stress this point too strongly.

So this is "Amateur Radio"! If you don't like it, tell us if you do, tell your friends — THE EDITORS.

Editorial reprinted from the first *Amateur Radio*, 1st October 1933.



BEHIND AX4QCG

David Jones VK4NLV,
OPERATIONS MANAGER
6 Barfoot St., Nashville, 4017

A behind the scenes view of amateur radio station AX4QCG which operated at the XII Commonwealth Games, Brisbane, from September 30 to October 9, 1982.

"Welcome to the Games. The XII Commonwealth Games are being held at Brisbane, Australia, and AX4QCG is the official amateur radio station.

"Like Brisbane, like Australia, like amateur radio, these Games are friendly. So welcome to the friendly Games.

"The Wireless Institute of Australia, the world's oldest amateur radio society, was founded in 1910. In 1911 to celebrate the coronation of King George V, an Empire Games was held in London.

"Side by side, amateur radio and the Games have become stronger and friendlier.

"Both amateur radio and the Commonwealth Games have as their basic objective to promote international understanding, goodwill and friendship. Long may these ideals last!

"AX4QCG is organised, funded and staffed by the Queensland Division of the Wireless Institute of Australia as a service to interested amateurs in the British Commonwealth, and also to amateurs who are interested in that great band of independent nations across the globe called the British Commonwealth.

"On behalf of the VK4 Division of the Wireless Institute of Australia, I welcome you once again to the friendly Games and look forward to an enjoyable QSO."

With those words the VK4 Division President, Guy VK4ZXZ, officially commenced transmissions from AX4QCG, the official amateur station, at the QEII sports complex, Nathan, Brisbane, on September 30, 1982.

GETTING APPROVAL

Such a station had been born in the minds of VK4 Division members soon after Brisbane's bid for the 1982 Games had been successful.

After the success of CG6A in Edmonton at the XI Commonwealth Games, the division contacted the Commonwealth Games Foundation advising the communications staff of the traditional presence of an amateur radio station at all Commonwealth and Olympic Games.

We were assured that, in Brisbane, the tradition would be upheld and there would be a place for amateur radio. We were advised to make contact about two years before the Games.

Regular contact was maintained with the Foundation by the Division Secretary, Fred VK4AFJ, who often found great difficulty in obtaining answers to questions from Foundation officers who were at first unsympathetic. But once their problems of a host broadcaster were solved and sponsors and ticket money flowed, they were happy to look at the non-revenue producing areas.

Although our position had been assured, by May, 1982, we still had no real directions. A meeting was arranged between the Foundation's Communications Division Manager, Mr Trevor Steer, and the Division represented by the Secretary Fred Saunders,

Senior Vice-President Rod Taylor VK4NBD/YRT, and David Jones VK4NLV who had been volunteered as operations manager. It then became clear that, although the Foundation had made provision for our station theoretically, they had no idea of what an amateur radio station really encompassed.

Once it was realised we envisaged using up to 400 watts PEP on HF (HF) and 25 watts on VHF/UHF and a frequency agile station at that, problems arose with DOC via the host broadcaster.

At the main Games venue, QEII, there would be a vast array of electronic equipment including fourteen TV cameras, computers, two electronic scoreboards, and more than two hundred handheld transceivers from sources as diverse as the Queensland Police, Brisbane City Council, the South East Queensland Electricity Board and other essential services.

Many of these would have dubious immunity from RF fields.

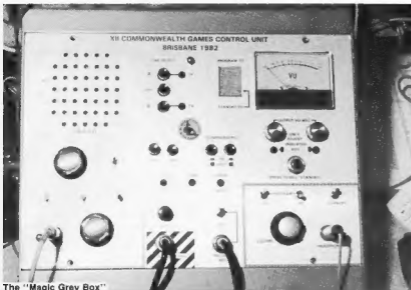
Compounding this, QEII is about 1½ km from Mt Gravatt, the city's main telecommunications and commercial services receive site.

Since communications were the key to a successful Games, the authorities were understandably extremely concerned about such a high powered service.

FINDING A SITE

After inspecting the site, we chose a remote corner but this had been taken for 105mm howitzers for 21-gun salutes!

A second choice was destined to have a VIP restaurant neighbour and a bus station with



The "Magic Grey Box"

extensive loud hailer and talk-through repeater interference!

In the end, we agreed reluctantly that to operate an HF station in such a sensitive environment was difficult to say the least.

We settled for a remote HF transmitting site linked with QEII by UHF. In retrospect, VHF would have been better due to the many UHF circuits.

The authorities decided: No HF on site; VHF to be extremely limited in power and use; and UHF be used with an input power of less than 0.5 watts to a directional antenna with a gain of not less than 12dB.

With these parameters, AX4QCG organisation began with less than two months to the start of the Games.

On-air appeals for volunteers were successful and the final problems were reduced to an electronic interface between QEII UHF and HF retransmission, a suitable QTH for HF and VHF, and suitable management of the thirty volunteers to man the two stations over ten days.

Design and construction of the two interface units and transceiver establishment was left to Geoff Adcock VK4AG.

Geoff, Aaron VK4AHO and Phil VK4APA, designed a "magic grey box" to allow a 433.5 MHz signal from QEII to be received at a remote transmitting site. Geoff VK4ANP volunteered his QTH at Woodridge, about 10 km away, with an excellent suburban antenna farm including a home-brew, eight element log periodic antenna covering 13 to 30 MHz, dipoles for 40 and 80, an end fed wire for 160 plus VHF and UHF.

Station operation was to be from a caravan in Geoff's front yard between 10am and 11pm and extra runs of RG8 linked his antennas. Three shifts of operators were possible.

The QEII station was established in a caravan loaned by Doug Downey VK4KSP and was conveniently located close to the Games Post Office.

Depending on the days, two or three operators would man this from 10am to 5pm while two teams of two would operate at Woodridge monitoring the link and seeking further contacts on standby transceivers.

Security/accreditation requirements at QEII

meant that the Woodridge station continued to 11pm after the other station closed.

Just twelve days before the Games, DOC head office in Melbourne became concerned at the security of the UHF link because of some unfortunate incidents in VK3 and overseas.

The standard broadcast solution to the problem — a time lapse loop — was requested so any untoward transmissions could be intercepted on the UHF monitor before HF transmission!

Although a seven second delay may be admirable on repeaters, it is impractical on crowded HF bands.

We suggested a sub-audible tone be fitted to the QEII transmitter so that the UHF receiver at Woodridge would receive only that transmission.

DOC approved this and at very short notice Mike Adams VK4ZDA supplied and fitted the necessary equipment.

DETAILS OF THE "GREY BOX"

This box had three major functions. Firstly, it connected one HF set, via a UHF link to QEII. Secondly, it had to allow use of another HF (standby) transceiver, eg for SSB or CW use, and thirdly, it had to allow the roles of the two HF sets to be easily interchangeable.

Each of the two operators at the "magic grey box" had, in front of him, a headphone socket, a volume control, and three switches which enabled him to select either the main HF rig (program — from QEII), second HF rig (standby) or UHF link program.

The monitor speaker, (see photo, top left) with its associated volume control and mute switch, was for the UHF/HF link program. This enabled the monitor operator to listen to both sides of the link without headphones.

The UHF select — "A", "OFF" or "B" enabled either of the UHF frequencies to be selected, or to disable the link altogether so as to allow HF operation from the remote site when no programme was being sent from QEII.

The receiving UHF set at Woodridge, the remote HF site, was modified to act on a carrier-operated switch, (COR), with a sub-audible tone. This COR controlled the other UHF set, disabling its PTT and preventing its operation while a signal was being received, whilst simultaneously activating the transmit mode of the selected HF set. This gave full automatic control of the selected HF set from QEII.

Also incorporated in the box were:

- (a) a VU meter which always monitored the received HF programme eg a DX station. This enabled a constant audio level to be maintained on the UHF link. This also allowed, with the push of a button, the pre-checking of received levels on the standby HF transceiver prior to its selection as the programme HF transceiver.
- (b) The eight-segment LED read-out which gave visual indication of which HF Tx was in use by displaying the numbers 1 or 2.
- (c) Two external TOA audio compressors of broadcast quality supplied by Del Sound Pty. Ltd., one operating on the HF programme, and



David VK4NLV at the mike in the caravan at QE II Stadium.



Outside view of the Communications van. L to R. Rod VK4 YRT/NBD, Barry VK4BIK and Guy VK4ZXZ.



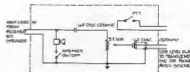
TRY THIS

Low Level Patching Unit

Shane Burgess VK7BX

Many members have said that they are unable to do broadcast relays because they do not have patching facilities. This simple design should overcome those problems at minimum cost.

The circuit is simply a voltage divider with the low level audio being picked off on the wiper of the pot. The speaker shown is to enable the incoming signal to be monitored. The capacitors on the input and output are for DC isolation, i.e. to prevent a DC current flow to earth and/or the other transceiver or receiver.



C2 should be soldered directly to the potentiometer and a shielded cable earthed at one end only (as shown) run to the low level output socket. The PTT switch need only be installed if your transceiver does not have a PTT switch on the front panel.

The output should be wired into a microphone plug according to the microphone plug wiring diagram in your owner's manual. The whole unit inside of the dotted line should be built in an all metal box to minimise hum and RF interference. ■

From "ORM" VK7 Div. Journal, April 1982



QSP

COMMONWEALTH GAMES STATION — AX4QCG

This would have been one of the most successful operations undertaken by our Division. About 2800 stations around the world were contacted over the period, including many of the smaller Commonwealth countries. The operators report tremendous moral support from Australian stations in particular.

The QSL Centre attracted over 315,000 during the period and it is estimated that about half of these had to pass by the station. So you can see that the "AMATEUR RADIO COMMUNICATIONS" sign received some good exposure. As well, about 200 interstate and overseas amateurs introduced themselves and received a card.

As if this was not enough, the ABC News broadcast an evening news segment featuring the station and comparing it with their operation. Guy VK4ZXZ, the Station said the right words regarding the amateur radio aims and objectives.

I would say without hesitation that the cost of the operation to the Division (about \$1800) has been well and truly justified by the above publicity and goodwill.

David VK4DT

the other operating on the UHF received audio. These units maintained constant levels on all transceivers.

The standby and programme microphones were automatically connected to the appropriate transceiver by internal switching. The programme monitor operator was also able to talk back up the link, or to interrupt the HF programme. Whenever this occurred, the UHF link was automatically disconnected, and this put the programme monitor operator to air on HF or UHF, whichever he selected. To restore the link, he simply pressed the "Reset" button.

Various coloured LED's were used to indicate the mode selected for any of the functions.

One week to go and AX4QCG was ready technically but we still had the Games security system to overcome.

Our caravan and ancillary equipment could not be set up until one day before the opening, but this problem was overcome. A 40 knot westerly on opening day did not help when making final antenna adjustments.

But where were the contacts? When AX4QCG started to air, our normally active HF bands were quieter than any mouse!

Could it be that all interested amateurs had joined the five hundred million or so people glued to "The Box"?

However, days of active amateur radio activity followed. About three thousand special QSL cards were written and about one hundred and fifty "eyeball" QSL cards collected personally.

The Games were called "The Friendly Games" and this was certainly true of all our contacts despite contests in progress.

After 10 days, our president said:

"AX4QCG is dead. The official amateur radio station of the XII Commonwealth Games held in Brisbane, Australia, has now joined the ranks of the silent keys."

"However, before AX4QCG is forever silenced, let us remember what it stood for. Like the Commonwealth Games, amateur radio is friendly."

"We help to spread goodwill and understanding between nations continually. The Games do it very well once every four years."

"However, the Games have made Australia as a nation walk tall! Let us learn from the

Games and be friendly always. Be proud of our operating techniques, our courtesy, and, above all, our country — VK.

"On behalf of the VK4 Division of the WIA, I salute AX4QCG and all who made it possible."

"AX4QCG is silent. Long live its spirit."

On behalf of the WIA Queensland Division, I would like to thank all the volunteers who made AX4QCG a reality and to thank the operators listed for their courtesy and efficiency in the operation of AX4QCG.

Keith VK4ANY, Fred VK4RF, Bill VK4WO, Barry VK4BIK, Doug VK4JB, Ray VK4ACU, Doug VK4AVR, Geoff VK4AG, Geoff VK4ANP, Mike VK4AFM, Fred VK4AFJ, Rod VK4YRT/NBD, Steve VK4KSG, Roger VK4KIE, Ray VK4KWR, Des VK4KDW, Guy VK4ZXZ, Mark VK4ZJX, Ian VK4YIP, Val VK4ZVR, Xavier Roca, Anne VK4NRA and David VK4NLV, and of course Aaron, VK4AHO, Phil VK4APA, for their design work and help with the "grey box".

AB



Matilda, the first YL of the Games.

AB

A BANANABENDER IN BAVARIA

Peter Brown VK4PJ/DL-VK4PJ

16 Bede Street, Baltimore 4171



Experts have told, and will continue to tell, of the beauty of the Franconian countryside. Amateur Radio also flourishes here and the visitor who is an amateur will find his hobby an added advantage as it, in my case anyhow, provides a passport to the people, so often not available to the tourist.

I spent nearly four months at Erlangen, north of Nurnberg and my first experience was a "Flohmarkt" or flea market at Nurnberg, solely for amateur radio, so gripped many kilometres ahead so that no visitor would miss his way in the big city.

Here was a huge hall almost filled with stands, or blocks of tables upon and behind which were displayed dealers, new and second hand equipment, and amateurs surplus equipment from clubs or individuals. You could buy new, you could buy second hand, you could buy and bargain for almost anything likely to be needed by an amateur. Yes, at some of the prices I would have liked to have invested, especially VHF/UHF fittings.

This one day gathering was the biggest amateur event that I had witnessed until Friedrichshafen. Some 4000 amateurs would have passed among the stands. I was fortunate that I was introduced to the "VK specialist", who is also an eye specialist, Harro DJ6RB/VK2DKD, and his XYL Yvonne DL NAY/VK5AYK, who made me most welcome in the best traditions, and helped me make regular communication with Australia. I also met Klaus DJ6LB/ex VK4AKK, and family who helped me along the track



Harro, DJ6RB/VK2DKD and his XYL Yvonne, DL NAY/VK5AYK.

One day I visited the Erlangen City Hall where displays of all kinds of recreational activities were taking place and included was a display by the Siemens Radio Club.

Early in my stay I was introduced to Richard, DJ5QT of the Siemens Radio Club

who offered me the key to the club station DL5TZ, and took steps to obtain a guest license for me namely DL/VK4PJ. Can you imagine the pencil work when logging DL/VK4PJ operating Siemens Club station DL5TZ? and the repairs. The VK4PJ part appeared but the DL disappointed. A VK contact is popular in Europe. Erlangen is the HQ of the big Siemens Group of Companies and the club has been provided with excellent clubrooms and modern HF equipment, including a linear, two metre and 70 cm equipment, RTTY and SSTV. Also in Erlangen is the very active Utenreuth Radio Club, DK0UR, with whom I was able to spend a few hours at one of their field days, held over a four day weekend (Summer time is holiday time in Germany and there are plenty of holidays.) This field day was held on a wonderful site, the ridge overlooking the beautiful countryside was good enough to holiday upon and indeed that was what many did.

Dominating the scene was a vertical antenna complete with ground plane and fenced off with ribbon. Nearby was a large tent around which were the various HF and VHF beams, and housing the usual HF, VHF and UHF equipment as well as a couple of electric stoves, refrigerators, larders, etc. Out of earshot were a couple of alternators. Along the perimeter were the cars and tents of members. A great way to spend a weekend. Harmonics playing nearby and gave a festive air to the scene.

Another interesting and enjoyable Utenreuth Radio Club outing was a visit to Montzberg where Nurnberg members demonstrated the workings of the two metre and 70 cm repeaters which serve from the mountain site to the Erlangen/Nurnberg areas. This site is shared by other services and the equipment is housed in a very old but sound tower once used by an ancient religious order. The old monastery adjacent has been converted to an Inn and here members repaired for a typical Bavarian country repast. To add tone to the dinner came an elderly musician, complete with zither, who before too long was accompanied by guests singing. Repeaters seemed to be put to good use but because of language difficulties I did not use VHF/UHF.

A lot of Germans have learned and can speak good English but are lacking in any practice and thus lack confidence in carrying on a conversation in English but once started many prove their ability quite well. I have noted, ever since obtaining my license,

and working DX, that most Austrians speak to foreigners too rapidly. How many foreigners have had as much practice in English as English speakers? As most of us are aware, European amateurs have many more problems to contend with than we have.

As such a high proportion of the population live in apartments, how do you get agreement to mount an antenna and feedlines?, and how do you cope with TV, and European QRM?



The only free-standing tower Peter saw on his trip to West Germany.

I can only remember seeing one free-standing beam tower but I did see a few beams on apartment houses and masts through the steep roofs. The German amateurs that I met seem to have taken all these problems in their stride and enjoy their hobby as much as we in Australia do. I must remark on the festive spirit evident so often and due no doubt, to the many festivals that are held. One could probably find two festivals, with much music, food and beer taking place any weekend and within an easy car drive from the QTH.

My association with German amateurs was an experience that I enjoyed immensely.

AB



EQUIPMENT REVIEW

Ron Fisher VK3OM

3 Fairview Avenue, Glen Waverley 3150

THE DRAKE TR-5 HF SSB/CW TRANSCEIVER

Although not as well known as some of the Japanese brands, the Drake Company of Miamisburg, Ohio has been in the amateur radio business for close to thirty years. They produced one of the first all band SSB transceivers, the TR-4, in 1963. Their amateur band receivers were considered next in line to a Collins and if you were fortunate enough to own a 2B in the late fifties you were someone to look up to. The '2' series receivers gave way to the 4 series which concluded with the superb 'C' model. Drake have always concentrated on superior receiver performance particularly in the area of strong signal handling, cross modulation and sensitivity, but as receiver designers know, these desirable features don't go hand in hand. The TR-4 transceiver was developed and improved through to the 'CW' series of the mid-seventies. However by this time the writing was on the wall for tube type equipment. Transistors were here to stay and design techniques had changed. The Drake TR-7 emerged as the world's first general coverage transceiver, fully solid state, digital readout, band pass tuning, the lot. The Japanese of course soon found out they were behind the times, but then as I have pointed out before in these reviews, many of our new developments come from the USA first.

A year or so ago, it must have become apparent to the Drake Company that the TR-7 was a little out of reach of many amateurs and so the lower priced TR-5 appeared with amateur band coverage only and basic features required by the average operator

THE TR-5 TECHNICAL FEATURES

At a distance, the TR-5 and the TR-7 look like twin brothers however the looks are only skin deep and the TR-5 is a very different piece of electronic equipment

In this day of increasing complexity in amateur equipment, it is nice to see a move away from this. While it could not be said that the TR-5 is simple in any way, it is nevertheless a transceiver with basic features packaged in a relatively large box with a 'get at-ability' that is just not seen these days. If you have been complaining that the present crop of amateur gear is too complicated, too hard to operate and has more features than you would ever need, then the TR-5 might be just what you have been looking for. You might even have a chance of fixing it if anything goes wrong.

Frequency coverage is amateur band only from 160 to 10 metres including the three new WARC bands at 10, 18 and 24MHz, in 500kHz segments. As supplied in standard form, the heterodyne crystals for 160 metres, the 18 and 24MHz bands and 28-29.5, 29-29.5MHz are optional extras and were not included in our review transceiver



TR5 with matching microphone

As mentioned earlier, the TR-5 is housed in the same cabinet as the more elaborate TR-7. It measures 31.75cm deep, 34.6cm wide and 11.7cm high. The weight at 6.35kg is a little less than the TR-7's 7.75kg.

The front panel has a similar layout to the TR-7 but has fewer control functions. The digital frequency readout is a six figure red LED display which indicates down to 100kHz. The analog dial has been simplified somewhat from the TR-7's twin rotating translucent scales showing the 100kHz and kHz segments with one kHz divisions on the tuning knob down to the calibrated skirt on the tuning knob only. Clearly the digital display is intended as the primary and only frequency indicator.

Receiver selectivity is taken care of with a 2.3kHz filter for SSB with several other filters offered as optional extras. However only one extra filter can be installed in the TR-5 at any one time and a front panel NORMAL/AUX BW switch allows selection of the optionally installed filter of your choice. There is no other band width or IF shift control included. The optional filters have 6dB band widths of 3, 5, 10, 1.8, 4.0 and 6.0kHz, the latter two being for AM, however no AM mode is provided for in the TR-5 transceiver.

The transmit section of the TR-5 features a broad band final which requires no tuning. When a 50 ohm load is presented to the output, the transmitter will deliver its rated output. It is designed for continuous operation on SSB or CW or for continuous SSB or RTTY operation provided the optional cooling fan is installed. Automatic high SWR protection is included.

The transceiver is designed to operate from a 12 to 18 volt supply such as a car battery for mobile operation or a 15/20 amp regulated supply for home station use. The optional Drake PS75 model 1570 regulated supply is recommended. If however you decide to use your own power supply, you will need to purchase the optional mobile mounting kit as no power supply connectors or cables are supplied with the transceiver.

The keen CW operator has been provided with full break in keying and of course the excellent selection of filters mentioned above.

The noise blanker for the TR-5 is another optional extra. Drake claim that it is useful in eliminating or reducing impulse noise and also over the horizon radar (woodpecker) interference. We will comment on the effectiveness of this later as the blanker was included in our review transceiver.

Drake engineers must be congratulated on finding yet another way of wiring up the standard Japanese four pin microphone connector. However the agents kindly supplied the delightful DRAKE/ASTATIC 7077 desk microphone which saved a rewiring job on one of my spare microphones. A microphone is not included with the TR-5 as standard.

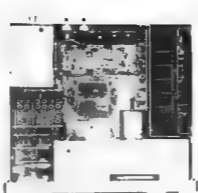
A multi pin connector on the rear panel provides connection for the optional external synthesized VFO. This is described as offering 10kHz resolution and automatic variable tuning rate.

Connecting a VHF transverter could prove difficult as no low level RF output is provided.

Where the TR-7 used an up convert system with a 48MHz first IF, the TR-5 has a conventional single conversion setup with an IF frequency of 5.6MHz. The PTO, or VFO if you prefer, operates from 10.6 to 11.1MHz and mixes with heterodyne crystal oscillator output to produce the required mixer injection to convert the incoming frequency to the 5.6MHz IF.

THE DRAKE TR-5 ON THE AIR

With its fully solid state broad band final, the TR-5 requires no tuning up for transmission or peaking for receive. As an external 13.8 volt regulated power supply is required, the Drake agents kindly supplied a heavy duty PS-7 for



TR-5 with cover removed — note final amp. heatsink running from front to rear

our use. They also supplied a model 7077 desk microphone which would have to be one of the most elegant microphones I have seen for some time.

First impressions are good, the meter is brightly illuminated and the digital display clear and spot on frequency but the tuning knob feels too small for comfortable handling and the finger recess is worse than useless. Turning rate is 25kHz per turn. The built in speaker is in the bottom of the cabinet and has very poor quality unless the front of the transceiver is raised about 5cm higher than the optional extra feet allow. This extra height is also required to present the front panel at the right angle for easy operation. Perhaps Drake might consider fitting a tilt base as is often seen on communications equipment these days. A few minutes use brought out another small problem I had trouble tuning the transceiver in the desired direction. It was most infuriating. The TR-5 tunes higher in frequency with an anti-clockwise rotation of the tuning knob. All of the equipment that I currently use tunes in the opposite direction. No doubt familiarity would overcome the problem.

The next funny thing encountered was that the audio gain control would not reduce the audio level to zero. In fact, at times, it was annoyingly loud at minimum gain. However worse was to come. With headphones in use it was very much too loud and as a single circuit jack is fitted you will not be able to plug in your stereo headphones. Stereo type headphone jacks have been common on Japanese equipment for some years now.

Having dispensed with the problems, let's look at some of the better features.

With a good quality external speaker plugged in, the recovered quality was excellent. Three AGC decay times are selectable plus AGC off. The slow setting is really slow, just right for those strong SSB signals on 80 metres in the evening. If you are hunting weak DX signals on 20 metres then the medium AGC decay is just right, allowing the receiver to recover quickly after tuning through a strong local. For break in CW the fast position is fine with almost instantaneous recovery.

Control knobs are somewhat larger than is common these days and being well spread out are easy to use. Only one concentric pair is used, the audio and RF gains, and these are grouped on the right side of the front panel close to the tuning knob.

Reports on the transmitted audio were most complimentary, perhaps due to the microphone supplied. The instruction book suggested that the microphone gain be set to give an 'S' meter reading of 'S2' to 4. Strangely there is no actual ALC scale on the meter. Anyhow the ALC certainly worked well and the setting of the micro-

phone gain seemed to be very non-critical. Rear panel facilities are reasonably good. Speaker and CW key connections are via standard ¼-inch phone jacks, while phone connectors are used for phone patch in and out. External receiver antenna connection, a separate receive antenna input and an external muter to operate a linear amplifier. Two preset controls are situated on the rear panel, the anti VOX level and the sidetone level controls.

ACCESSORIES

Several of the optional accessories have already been mentioned. One other however will be the subject of a separate review in the near future. This is the MN-75 Antenna Matching Network. Drake has for many years produced excellent antenna tuners to match the equipment and this one is no exception.

THE TR-5 ON TEST

The following test equipment was used to produce the figures that are quoted. Drake W4 watt meter. Kenwood SM 220 monitor scope. Heath Cantenna dummy load. Daven audio power output meter, AWA F242A noise and distortion meter. AWA G230A low distortion audio oscillator.

FREQUENCY STABILITY

The VNG frequency standard on 7.5MHz was used. From a cold start at 20°C the transceiver drifted 200Hz over the first hour and then stayed to within 50Hz over the next two hours. This is a very acceptable result. It should be noted that as the TR-5 uses separate heterodyne crystals for each band the drift results obtained above might not be exactly reproduced on each band. However spot checks on other bands suggested similar results would be obtained.

POWER OUTPUT

Firstly power output was measured with full drive under CW conditions. (As mentioned earlier, not all bands are operative.)

| | |
|------------------|------------------|
| 1.8kHz n.a. | 18.0MHz n.a. |
| 3.5MHz 90 watts | 21.0MHz 50 watts |
| 7.0MHz 85 watts | 24.5MHz n.a. |
| 14.0MHz 82 watts | 28.0MHz 50 watts |
| 10.1MHz 80 watts | |

PEP output as checked on the mon for scope was about the same with a copy book pattern. Even when driving the ALC much higher than the recommended level the pattern remained clean with no sign of flat topping. On air tests also indicated that the transmitted signal was cleaner than usual. A test on ten metres with an 'S9' signal, only produced 'S1' distortion products (relative readings).

RECEIVER TESTS

Receiver residual audio noise level — 67dBm. An excellent figure which perhaps shows the good design of the Drake PS-7 power supply. The receiver output was terminated in the recommended 40 ohms. Maximum audio output was 2 watts at a very low 1.6% distortion. Measured again at a normal listening level of 2 watts the distortion had dropped to 1%. The audio for this test was a 1kHz tone produced by feeding a crystal oscillator into the receiver antenna socket.

Receiver frequency response was checked by tuning across the same signal. The 6dB points were 400Hz and 2.4kHz with the -3dB points at 500Hz and 2.5kHz. Less than 1dB variation occurred over the rest of the curve. The narrow filter fitted to our review transceiver produced 6dB points at 900Hz and 1.8kHz.

The RIT control is usable on receive only and has a range of +3.6kHz and -2.6kHz.

Terminating the receiver input with a 50 ohm load and then tuning across the various bands produced a surprising number of spurious responses. Most would be lost in noise with the antenna connected but several were able to push the 'S' meter to 7 or 8. These were on 21.165, 21.064, 29.101 and 28.927MHz.

SPECIFICATIONS

GENERAL

Frequency Coverage 1.8-2.0*, 3.5-4.0, 7.0-7.5, 10.0-10.5, 14.0-14.5
18-0.18 5" 21.0-21.5 24.5-25.0 26.0-26.5", 28.5-29.0, 29.0-29.7" MHz
(*With accessory range crystal.)

Modes of Operation USB, LSB, CW

Frequency Stability Less than 1kHz drift first hour Less than 150Hz per hour drift after first hour Less than 100Hz change for a $\pm 10\%$ line voltage change

Readout Accuracy $\pm 10\text{ppm} \pm 100\text{Hz}$

Power Requirements 13.6 VDC regulated 2 A 12-16 VDC unregulated, 0.8 V rms max rms ripple 15 A

Dimensions - Depth 12.5in (31.75cm), excluding knobs and connectors. Width 13.5in (34.5cm) Height 4.6in (11.7cm), excluding feet

Weight 14 lb (6.35kg)

RECEIVER

Sensitivity Less than 0.5 μV for 10dB S+N/N except less than 1.0 μV , 1.8-2.0MHz

Selectivity 2.3kHz minimum at -60dB, 4.1kHz maximum at -60dB, (1.8:1 shape factor)

Ultimate Selectivity Greater than 95dB

AGC Less than 5dB output variation for 100dB input signal change referenced to AGC threshold

Intermodulation (20kHz or greater spacing) - Intercept Point Greater than 0dBm

Two Tone Dynamic Range Greater than 85dB

IF Frequency 5.645MHz

IF Rejection 50dB minimum

Image Rejection 60dB, minimum below 14MHz, 50dB, minimum above 14MHz

Audio Output 2 watts, minimum @ less than 10% THD (4 ohm load)

Spurious Response Greater than 50dB down

TRANSMITTER

Power Input (Nominal) 150 watts, PEP or CW

Load Impedance 50 ohms

Spurious and Harmonic Output Greater than 40dB down

Intermodulation Distortion Greater than 30dB below PEP

Carrier Suppression Greater than 50dB

Undesired Sideband Suppression Greater than 60dB at 1kHz

Duty Cycle - SSB, CW 100%, Key Down (w/FA7 Fan) 30%, 5 minutes

maximum transmit, Key Down (w/FA7 Fan) 100%

Microphone Input High Impedance

CW Keying: Instantaneous full break-in, adjustable decay

Others on 21 and 28MHz could prove troublesome but very weak signals.

As do not possess a signal generator of suitable quality sensitivity checks must be subjective and comparative with my normal station equipment. Sensitivity appeared to be excellent and quite up with other current model equipment. Strong signal handling was excellent with no trace of overload even or transmitted signals in the same shack. No front end attenuator is provided.

AGC action was checked by measuring receiver audio output with the crystal calibrator coupled to the receiver to produce an 'S4' signal and then connected to produce an 'S9+30dB' signal. There was no variation in audio output level for this change of input signal.

INSTRUCTION BOOK

Having looked at many Japanese instruction

books over the years it is certainly interesting to look at an American book with their rather different approach. First impression is the excellent quality of the printing and general production. Spiral binding is used so the book can be opened at any point and will then stay open.

Subjects covered include: power supply connections, microphone connections, front panel controls, rear panel controls, CW side tone adjustment, accessory filter installation, CW and SSB operation.

An excellent chapter describes the theory of operation while another has basic service information. A full circuit and block diagram are included.

CONCLUSION

As a basic transceiver, the TR-5 does a commendable job. It is however surprising that a firm with the experience of Drake would spoil the otherwise excellent performance with a few

blunders that in most cases could be put right at minimal cost. However I am sure that the TR-5 will appeal to many amateurs who prefer straightforward gear that will probably be operating satisfactorily years after some of its contemporaries have passed the point of economical repair.

The TR-5 used in this review was supplied by ELMEASCO Instruments Pty Ltd. Offices are listed below.

SYDNEY
PO Box 30, Concord, NSW 2137, Phone (02) 736 2888

MELBOURNE
PO Box 107, Mt Waverley, Vic 3149 Phone (03) 233 4044

Elmeasco also have offices in Brisbane, Adelaide and Perth - all enquiries regarding price and delivery should be directed to them at their nearest office.

The Adventures of Bill Blitheringwit

Ted Holmes VK3DEH
20 Edmond Street, Parkdale 3195



These adventures have been appearing each month in the Moorabbin and District Radio Club magazine "APC" under the pen name of "Segue". This is a musical expression meaning "press on" and could be said to be appropriate to most amateurs. Bill Blitheringwit is entirely a figment of the imagination and is not intended to be representative of any particular person. If anyone reads himself into any of the stories, that is his own choice. . . .

BILL AND THE PCB

Bill Blitheringwit signed heavily and reached for his Scope soldering iron. He realised that life wasn't meant to be easy, but this was going too far. He had spent nearly four hours trying to put this small circuit board together and this must be about the fifth time he'd tried to insert this idiot transistor. Each time he'd tried, something happened. He had got it in the wrong way round at least three times and had had to desolder it and remove it from the board. The thin little legs of the device looked a bit wobbly by this time.

He tried again. One of the legs broke off and he reached for the solder sucker. It was blocked. He tried to clear it and the teflon nozzle broke off. Not deterred, he placed the board on end and gripped the remains of the transistor firmly, whilst pull-

ing, and applied the hot iron to the other side of the board.

There was a sizzling sound and a strong smell of something burning. The transistor grew very hot and Bill let go. The Scope then destroyed the copper track and the board was rendered useless.

Bill cursed and immediately set about trying to repair the remnants of the copper track. He threw the transistor away and then spent thirty minutes trying to find it, as he didn't have a note of the type number and wanted to buy a replacement.

Eventually he ran a stream of hot solder on to the blackened circuit board and was satisfied that he had created a track of sorts. Only he had blocked up some holes, so he needed a drill. After rummaging around, he found one buried under his

workbench. It was pretty ancient and the power cord was frayed. Bill plugged it in and switched on. There was a loud bang and the fuse in the power box blew. All the lights in the garage - and, in fact, the entire house - went out.

Bill tried to walk towards his car to fetch a torch but tripped over the power cord of the antique drill he was carrying. The implement flew out of his hand and went straight through the windscreen of his wife's car.

By the time Bill had finished sorting himself out and making explanations to his irate wife, who demanded to know what he was playing at, Bill had forgotten what it was he had been trying to make and the ruins of the circuit board joined many others in his capacious junk box.

EVALUATION AND ON AIR TEST OF THE DRAKE TR-5 TRANSCEIVER

Serial No 001330

| CATEGORY | RATING | COMMENTS |
|------------------------------------|-----------------|---|
| APPEARANCE | | |
| Packaging | *** | Transceiver plastic wrapped, foam inserts, strong carton |
| Size | ** | Larger than most competitors |
| Weight | ** | Fairly light for size |
| External finish | ** | Neat but very basic styling and finish |
| Construction quality | *** | Good quality circuit boards and neat internal wiring. |
| FRONT PANEL | | |
| Location of controls | *** | Controls are well spaced and easy to operate. |
| Size of knobs | *** | Normally used controls are large. |
| Labelling | *** | Very clearly labelled |
| Meter | *** | Brightly illuminated |
| VFO knob action | ** | No backlash. But knob too small. Finger hole too small. Knob turns anti-clockwise for increase in frequency |
| Dial readout: | | |
| Digital | *** | Bright red LED readout to 100Hz. |
| Analogue | * | Might be better if it was removed altogether. |
| Status indicators | * | Only one provided (RIT) |
| REAR PANEL | ** | Easy accessibility but limited facilities. |
| RECEIVER OPERATION | | |
| VFO stability | *** | See test section for results. |
| Digital dial | *** | Within $\pm 50\text{Hz}$ at all times. |
| Analogue dial | * | One kHz division on knob skirt only tracked over a few kHz. |
| Memories | NA | |
| Sensitivity | *** | In comparative tests very good |
| RF attenuator | NA | |
| RF gain | *** | Smooth and progressive action. |
| Selectivity | ** | A good filter, no other aids. |
| Passband tuning | NA | |
| IF shift | NA | |
| Notch/peak filter | NA | |
| Optional filters | *** | Several available |
| Spurious responses | * | Many evident. See test section |
| 'S' meter | ** | Smooth action |
| AGC performance | *** | Four positions (off, fast, medium & slow) also see test section |
| Signal handling | *** | No overloading found. |
| RIT operation | ** | Receive only. Digital dial follows. |
| NOISE BLANKER | | |
| Line noise | ** | Some reduction in some types of noise. |
| Auto ignition | *** | Quite effective |
| Woodpecker | * | No effect at all. |
| Effect on signal | *** | No noticeable effect on signal. |
| QUALITY OF RECEIVED SIGNAL | | |
| Internal speaker | ** | Only if front of receiver is lifted higher than optional feet allow |
| External speaker | NA | Available as option |
| Headphone output | * | Stereo phones only work on one side. Speaker has to be manually switched off. Audio gain cannot be reduced far enough |
| Cooling fan noise | NA | Fan available as option, not provided on review transceiver |
| TRANSMIT OPERATION | | |
| CW and PEP output | ** | See test section. |
| Audio response | *** | Excellent quality reports. |
| Audio sensitivity | *** | Plenty of mic gain. |
| ALC action | *** | No flat topping even with high mic gain |
| Speech processor | NA | Available as optional extra. |
| Metering | * | ALC and relative output, but no meter scale provided for either. |
| Relay noise | *** | Very quiet |
| VOX operation | *** | Smooth operation combined with quiet relays. |
| QSK operation | *** | Full break in CW operation. |
| Cooling | *** | No overheating noted |
| MANUAL (OWNER'S HANDBOOK) | *** | See comments in text. |
| ACCESSIBILITY FOR SERVICING | **** | Plenty of space to get to everything. |
| RATING CODE | | |
| Poor * | Satisfactory ** | Very Good *** |
| | | Excellent **** |

The G5RV* by "the Man Himself"

Lo-us Varney G5RV

* Reprinted from "QRM" Magazine with corrections submitted by the author

The G5RV aerial is a multi-band dipole specifically designed with dimensions which allow it to be installed in most normal-sized back gardens, permitting effective operation from 1.8 to 30 MHz.

As the G5RV aerial does not make use of traps or ferrite beads, the "dipole" portion becomes progressively longer in electrical length with increasing frequency. This effect confers certain advantages over a normal or trap dipole because, with increasing electrical length, the major lobes of the vertical radiation patterns tend to be lowered as the frequency is increased.

Thus, from 7 MHz up, most of the energy radiated in the vertical plane is at an angle suitable for DX working. Furthermore, the horizontal polar diagram changes with increase of frequency from a more or less typical half wave horizontal dipole diagram to that of a typical "long wire" aerial at 14, 21 and 28 MHz.

Although the impedance matching of a suitable (non-critical) length of 75 ohm twin feeder (preferred) or 75 to 80 ohm co-axial feeder from the base of the matching stub to the transmitter or preferably, to a suitable aerial tuning unit, is approximate only for most brands, a very good match indeed is obtained on 14 MHz. It so happens also that the polar diagram on this band is that of a three-half-wave-length long-wire which is particularly suitable for all-round DX working and gives an estimated gain of about 3 dB over a simple dipole in the directions of the four major lobes.

The above reasoning does not apply to its use on 1.8 MHz where it functions as a Marconi or T-aerial with most of the effective radiation taking place from the vertical or near-vertical portions of the system, the "flat top" acting as a top-capacity loading element. However, with the transmitter end of the feeder strapped and with the system tuned to resonance with a suitable series inductance and capacitor circuit connected to a good earth, or a counterpoise, very effective radiation on this band is obtainable even when the flat top is as low as 25 feet above ground.

CONSTRUCTION

The dimensions of the aerial and matching stub are as shown in Fig. 1. It should be noted that it is quite in order to "bend" the lower half of the matching stub if desired owing to relatively low height above ground of the flat top. The writer has used this aerial for many years at a height of only 25 feet with excellent results on all bands from 1.8 to 28 MHz.

A word about the matching stub is in order if this is of open wire feeder construction (preferred because of lower

losses, especially at 21 and 28 MHz) its length should be 34 feet (17 feet for the half-size version), but if 300 ohm ribbon is used allowance must be made for the velocity factor of this type of twin-lead. Since this is approximately 0.88, the actual physical length of the 300 ohm ribbon stub should be 29 feet 6 inches. It should be borne in mind that this matching stub is intended to resonate as a half-wave impedance transformer at 14 MHz, which was chosen as the design centre frequency for the G5RV aerial, thus giving a very good impedance match for a 75 to 100 ohm twin-lead or co-axial cable connected to the base of the stub.

If desired, due to lack of sufficient space to accommodate the 102 feet long flat top, the ends of the aerial may be dropped vertically (or semi-vertically) for up to 10 feet at each end, thus reducing the overall length to 82 feet.

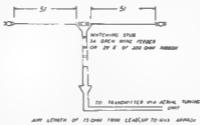


FIG. 1: Dimensions of the full-size G5RV Aerial. For the half-size version, the dimensions of the flat-top and matching stub are scaled proportionately.

An alternative arrangement to that of the matching stub and twin-lead or co-axial cable feeder is to use an 83 feet length of open-wire feeder measured from the centre of the flat top to the terminals of the ATU. This arrangement permits parallel tuning of the ATU on all bands from 3.5 to 28 MHz with very low feeder losses.

The spacing of either the open-wire stub or the 83 ft. long open-wire feeder is not critical and may conveniently be anything from 2 to 6 inches, using either 14 or 16 SWG copper wire. Although the use of 14 SWG is recommended for the flat top, 16 SWG is adequate for the matching stub or tuned feeder and is easier to "hang" neatly.

It is recommended that attention be paid to making a sound mechanical job of the construction of the aerial. In particular, if 300 ohm ribbon is used for the matching stub, the ribbon should be looped over the centre insulator of the flat top and secured with nylon thread or plastic tape, leaving "flying" ends about 9 inches long

forming two loops for connection to each half of the aerial. This type of construction avoids breaking of the ribbon due to swinging and vibration in high winds. Alternatively, a suitable triangular shaped ceramic or plastic dipole centre insulator which is designed to secure the 300 ohm ribbon may be used.

Although it may be very convenient to use a length of, say, up to 100 ft. of co-ax direct from the transmitter to the base of the matching stub, it must be remembered that such an arrangement will tend to produce currents which will flow in the outer conductor of the co-ax, causing unwanted radiation from the co-axial feeder. This may be avoided by the use of either 75 ohm twin-lead and a suitable ATU or the open-wire feeder and ATU as already mentioned.

Nevertheless, in practice very satisfactory operation can be achieved by the simple use of co-ax direct from the transmitter to the base of the matching stub even though the VSWR may reach 10 to 1 or more on 3.5 MHz. This figure may be reduced to about 5 to 1 on 3.5 MHz by "pruning" the co-ax. On the higher frequency bands the VSWR on the co-ax lies between 5 to 1 and 1.5 to 1, the latter figure applying to 14 MHz, where, as explained above, the matching is very good.

Contrary to general belief, a VSWR of up to 5 to 1 on a length of co-ax, up to about 100 feet, at the frequencies considered here, results in negligible loss of power. However, this is not to say that it is not better to keep the VSWR figure as low as possible, especially where a low-pass TVI filter is to be used. It is mainly for this reason that the writer prefers to use a convenient length of 80 ohm co-ax from the transmitter to an ATU and then 75 ohm twin-lead to the base of the stub. In this way, using a low-pass filter and a VSWR meter in the length of co-ax, a perfect, or near perfect, match can be obtained for the transmitter and filter on a band.

THE AERIAL TUNING UNIT

As stated above, the writer prefers to use an ATU for the reasons given. There are various satisfactory forms of ATU but one which the writer has used for many years and which is extremely flexible electrically and yet does not require the coils to be tapped for optimum feeder loading, is shown in Fig. 2.

In any case, whatever form of ATU is used a suitable VSWR meter should be inserted in the co-ax feeder from the transmitter output to the ATU. Optimum loading and maximum harmonic suppression will be achieved by watching the reverse current on the VSWR meter and adjusting both ATU tuning and loading capacitors for minimum reverse current.



FIG. 2: A suggested aerial tuning unit for use with the G5RV aerial. C1 is a 200/200 pF split-stator transmitter capacitor, the plate spacing being determined by the power it will have to handle. The coupling capacitor C2 consists of three 500 pF broadcast receiver variable capacitors connected in parallel. If necessary, this combination may be supplemented by a bank of switched high-voltage mica capacitors.

If the link-coupling coil is common for all bands (using plug-in ATU coils) it is preferable that it be of the "swinging" type, i.e. adjustable coupling. It will be found that, starting with the link coil fully coupled, normally, after the ATU tuning and loading capacitors have been adjusted to give the lowest possible reverse current, adjustment of the link-coil coupling will, in nearly all cases, permit a VSWR of virtually 1:1 to be obtained on the co-ax. cable to the transmitter.

However, if ATU coils having individual link-coils are used, the number of turns on each link should be adjusted to suit the actual conditions applying to a particular installation for each of the bands.

For a common, swinging, link-coil three turns is about as good a compromise as may easily be obtained.

Table 1 gives coil winding details for each band.

TABLE 1

| Band (MHz) | Turns | Turn Spacing (in.) | SWG | Coil I.D. (in.) | Fixed Link Coil* (turns) |
|------------|---------|--------------------|-----|---------------------|--------------------------|
| 3.5 | 17 + 17 | close wound | 14 | 2.5 (former) | 4 or 5 |
| 7 | 9 + 9 | close wound | 14 | 2.5 (former) | 3 |
| 14 | 5 + 5 | 1/10 | 10 | 2.25 (self support) | 2 |
| 21, 28 | 4 + 4 | 1/2 | 10 | 1.75 (self support) | 1 |

* Alternatively, a common three-turn swinging link coil 1 3/8 inch i.d., 14 SWG close wound; centre portion of coil formers cut away suitably to permit entry of swinging link coil

THEORY OF OPERATION

The general theory of operation has been explained in the introduction. The theory of operation on each band from 3.5 to 28 MHz will now be given in turn.

3.5 MHz—On this band, each half of the flat-top plus about 16 ft. of each leg of the stub forms a fore-shortened or slightly folded-up dipole. The remainder of the stub acts as an unwanted but unavoidable reactance between the centre of the dipole and the feeder to the transmitter or ATU. The polar diagram is similar to that of a horizontal dipole. See Fig. 3.



FIG. 3: The current distribution of the G5RV aerial at 3.5 MHz. Only one half is shown. The aerial functions as a half-wave dipole partially folded up at the centre. Some reactive mismatch occurs at the base of the matching stub, but performance is very good despite a rather high VSWR on 75 ohm co-ax. or 75 ohm twin feeder to the transmitter or ATU.

7 MHz—A similar arrangement exists at this frequency except that the flat top plus 16 ft. of the matching stub now functions as a partially folded-up "two half waves in phase" aerial, giving a polar diagram somewhat sharper than a conventional 1/2λ dipole and low angle vertical plane radiation. Again, the matching at the base of the stub is degraded somewhat by the unwanted reactance of the stub, but despite this the system loads well. See Fig. 4.



FIG. 4: Current distribution at 7 MHz. The aerial now functions as two half-waves in phase (partially folded at centre). Some reactive mismatch still occurs at the base of the stub, but operation is very effective.

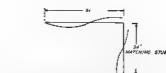


FIG. 5: Current distribution at 14 MHz. In this case, the aerial functions as a 3/2 wavelength long wire. A centre impedance of about 90 ohms is transferred to the base of the matching stub (this acts as a 1:1 impedance transformer) and results in a good match to either 75 ohm co-ax. or 75 ohm twin feeder.

21 MHz—Here the aerial works as a five half-wave long-wire giving a very effective polar diagram and good low-angle radiation. Although a bad mismatch occurs at the base of the stub, the aerial loads well and performs very satisfactorily. See Fig. 6.

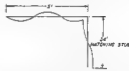


FIG. 6: Current distribution at 21 MHz. The aerial functions as a 5/2 wavelength long wire. Mismatch at the base of the stub when coupled to 75 ohm co-ax. or 75 ohm twin feeder results in a high VSWR, but operation remains effective.

28 MHz—On this band the aerial functions as two 3/2λ long wires fed in phase. The polar diagram is similar to that of a typical 3/2λ long-wire with slightly sharpened lobes and the radiation is at a low angle, good for DX working. Again, the mismatch at the base of the stub is considerable but, in practice, the aerial loads well and works very effectively. See Fig. 7.

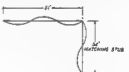


FIG. 7: Current distribution at 28 MHz. The aerial is effectively two 3/2 wavelength long wires fed in phase. Mismatch to 75 ohm co-ax. or 75 ohm twin feeder at the base of the stub causes a high VSWR, but operation is effective especially if an ATU is used.

In connection with the above descriptions, reference should be made to the Amateur Radio Handbook or the ARRL or "CQ" Amateur Handbooks where the polar diagrams of typical long-wire aerials may be found.

THE HALF-SIZE VERSION

Many requests have been received for information on the half-size version of the G5RV aerial for use in very restricted spaces. It is quite possible to scale all wire length dimensions (including that of the

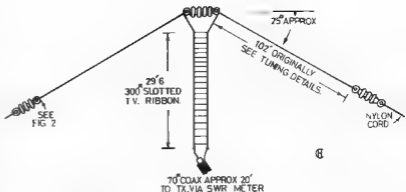
14 MHz—At this frequency the conditions are ideal. The flat-top forms a three half-wave long-wire centre-fed aerial having six lobes of radiation, four major and two minor. As the centre impedance of a wire of this length at about 30 to 35 ft. above ground is approximately 90 to 100 ohms and the 34 ft. stub acts as a 1:1 impedance transformer, the match to an 80 or even 75 ohm feeder is quite acceptable. Most of the radiation in the vertical plane is at an angle of about 14° which is very effective for DX working. See Fig. 5.

slub) down to exactly half-size and the resulting aerial will work from 7 to 28 MHz. Optimum performance and impedance matching will occur on 28 MHz, where the operating conditions will be as for the full size version at 14 MHz.

OTHER CONFIGURATIONS

The G5RV works excellently in the form of an 'inverted V' antenna I used one with great success for six months while in Belgium as ON8RV in 1970.

Two G5RV antennas stacked, one 24 ft. above the other, preferably with the lower one a quarter wave (17.5 ft.) above ground, with the 34 ft. matching stub TRANSPOSED and the slack suitably taken up by folding or suitably pulling out to one side or other of the array by means of a nylon cord, will act as a multi-band version of the "Lazy-H". This arrangement has given excellent results and has been used for many years by Pete Broome G5DQ.



(c) Often amateurs are heard to say that the G5RV is a compromise antenna and so must perform poorly in some respects. (No reasons are ever given, just the statement!) This is not so in practice. After all, the G5RV is no more a compromise than any other multi-band antenna (even the mighty TH6L).

TUNING

This is probably the greatest bugbear in the use of the G5RV and the reason why many operators give it away as a bad job. They are faced initially with an SWR that is considered too high or a transmitter that will not load satisfactorily, and therefore assume that the only answer is in the use of an antenna tuning unit or the use of another type of antenna. I would not recommend the use of a tuning unit or the scrapping of the G5RV in these circumstances, and suggest the method used to tune my particular antenna when it was first erected.

The antenna is tuned simply by shortening (but not by cutting) until an acceptable combination of SWR and satisfactory transmitter loading is achieved. This is done by pulling wire through each terminal insulator in turn and folding it back on the main wire (see Fig. 2).



FIG. 2: Tuning adjustment (tape securely when finalised).

Do this in steps of about six inches at a time and test after each adjustment. Concentrate first on the 20 metre band (say at 14,180-14,300 kHz) and when it is satisfactory, test on the other HF bands. These will usually be found satisfactory but some further adjustments may be necessary for the best compromise on all bands. If you have a favourite band other than 20 metres adjust for the best SWR and loading on that band.

I obtained the following results —

| BAND | SWR |
|-----------|-----------|
| 80 metres | 1.3 |
| 40 metres | 1.6 |
| 20 metres | 1.0 - 1.1 |
| 15 metres | 1.6 |
| 10 metres | 4.0 |

With this method of tuning the full original length of wire is left in case the antenna configuration is changed, or in case you change QTH. Both could require checking and probable readjustment.

USE ON 160 METRES AS A LOADED VERTICAL

I was able to load the G5RV satisfactorily on 160 metres by simply joining the two conductors of the coax feeder and then running a single wire to the p-output of a small 10 watt AM transmitter (see Fig. 3). A buried earth wire was run to the nearest water pipe.

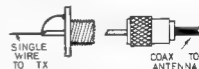


FIG. 3: Female and male coax connectors (any convenient type).

With this combination lots of local and interstate contacts were made. Strangely in this case the addition of series inductance or capacitance had very little effect on performance. Nevertheless, some operators find it worthwhile to feed the antenna on this band via a series tuned circuit or to use a tapped inductor (see Fig. 4).

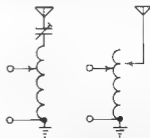


FIG. 4

Needless to say the better the earth system used the better any such vertical antenna will perform.

An elementary yet often overlooked point in resonating such an antenna was brought to my notice by Lin VK3ARL, who suggested first peaking whatever tuning arrangement is used by listening to a strong (but not overpowering) signal and

Some Thoughts on the G5RV*

Maurice Evered VK3AVO
13 Sage Street, Oakleigh 3186
*Reprinted from AR, April 1974

The theory of the G5RV antenna has been discussed in detail by "The Man Himself". This article, based on the author's experience, deals with some practical aspects of its use.

A G5RV has been used at this QTH for over ten years for both local and DX work on all bands from 160 metres to 2 metres. What follows is intended to help anyone who wishes to use this antenna. Much of the information given is not found in the usual texts but has been learned the hard way by many amateurs. Most of the methods used are not original but the result of helpful advice from many other VKs, particularly Vn VK3AOV who suggested I try a G5RV after a coax fed multi-dipole had proved disappointing on the higher HF bands. I will present the information under four headings.

CORRECTING THE POPULAR MISCONCEPTIONS

(a) The G5RV does not have to be used with its 102 ft. length perfectly horizontal. It can be used in a sloping configuration, as it is at this QTH (see Fig. 1) with no loss of efficiency (although some cancellation may occur if the angle of depression from the horizontal becomes too large).

(b) The length of coax cable used does seem to be important. Most operators who successfully use the G5RV have been able to confine the length of coax to less than 30 ft. Conversely, greater lengths (more than 50 ft.) may lead to poorer performance despite the fact that if good quality coax is used losses should not be severe, at least on the lower frequencies. This is an empiric, finding arrived at after questioning many satisfied and dissatisfied users over a four year period.

watching the receive S meter. Though the tuning position may not always coincide with that for best transmission it will be close enough to assist greatly in preliminary adjustments.

Opinions vary as to the best way of getting optimum results on transmission. Antenna current measurements are fine provided that any tuning changes do not alter the impedance at the point of meter insertion. I used a simple field strength meter but any changes are best supported by a local amateur with a reliable S meter. Don VK3ADP and Ron VK3OM obliged on many occasions.

USE AT VHF

Although it is generally not considered a VHF antenna interesting effects can be obtained because the G5RV is several wavelengths long at these frequencies (particularly at two metres) and is bi-directional.

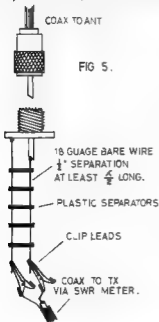


FIG. 5

off its ends. The antenna was fed as in Fig 5. Clip leads are slid up and down the parallel wires until a low impedance point is found. This gives a low SWR on the coax line to the transmitter. A tuning unit could of course be used but the method shown is very simple, very cheap, and most important, very effective.

Six metre testing was rather restricted but extensive tests were performed on two metres on channel B using an FT 2F-B. Very satisfactory results were obtained, stations being worked across the city when using the one watt output position.

Well, there it is. I would never claim that on 20, 15 or 10 metres a G5RV would equal or even approach the performance of a well adjusted quad or yagi, but I have tried quite a few wire antennas and, of these, I think the G5RV is out on its own for overall performance, size and ease of erection and adjustment. ■

Further Ideas on the Ubiquitous G5RV*

Phil Williams VK5NN
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*Reprinted from AR, June 1974

The article by the originator of this famous antenna was extremely interesting, but there are a few further points which have resulted from re-locating my station from a quiet semi-rural QTH to an urban situation which is much more noisy. These modifications concern the low impedance feeder from the Z match to the bottom of the 300 ohm feed-line, and a method of feeding and matching the antenna as a top-loaded vertical for 160 metre operation.

The usual form of the G5RV is a 102 ft centre-fed flat-top antenna, which works best when at least 30 ft. high. Even the G5R-inverted-V works well on a single central pole. The central feeder is usually a 20 metre half-wave resonant piece of 300 ohm or open wire line which it pays to grid-dip before erection by shorting both ends, stretching out full length and grid-dipping to, say, 14,150 kHz. From the bottom of this to the transmitter or Z match (which should always be used with a multi-band aerial) it has been usual to employ coaxial cable of 50, 70 or 100 ohms impedance.

This is fine for transmitting but the outside of the coax cable picks up more noise than I wanted to hear, and much of this is transferred capacitively to the Z match tuned circuits from the link. The 80 and 40 metre bands were worst affected in this regard.

Remedies for this were firstly to replace the coax cable with balanced feeder such as lamp flex, Telcon 72 ohm twin-lead, or a low Z balanced quad line, and secondly to earth the centre tap on the low frequency link on the Z match. A third remedy, after the implementation of the former, was the fitting of a cylindrical Faraday shield between the coils. However, this provided only marginal, though measurable, improvement.

In his original article Louis Varney mentions the use of 70 ohm twin lead or the use of 83 ft. of 300 ohm line directly to the ATU. However, I had fears about

operating the former at 350 watts and high SWR and the open wire line is sometimes unsightly in the house.

The twin lead used was twisted polythene coated copper wire from discarded multi-core telephone cable. The wire was designated 20 lbs. per mile or about 20 SWG. A balanced quad was also tried connecting diagonally opposite wires together, but little improvement was noticed. About 30 ft. of the twisted line showed no sign of distress within 350 watts PEP SSB. Black PVC tubing was pulled over the twisted pair as a weather and ultra-violet light shield where the feeder is in the open.

Noise varies with time and weather but typically, the above measures reduced S8 or 7 levels to less than S3. The Faraday shield resulted in a further reduction of about 6 dB or 15 point, but did not make any great difference to readability of signals on 80 metres.

Fig. 1 shows the general arrangement of the G5RV and Z-match. The additional switches shown are well worthwhile. S1 enables the antenna to be switched to L2 for 10, 15 and 20 metres, or to L4 for 20, 40 and 80 metres, and saves having to jump up to unplug or operate on terminals. The other switch S2, enables the antenna to be fed against ground for 160 metre operation. A good earthing scheme is needed, such as stakes, radials etc., but this will not be elaborated on here.

The centre point of the link L4 is a convenient point for feeding, and both 160 metres on a receiver and another band

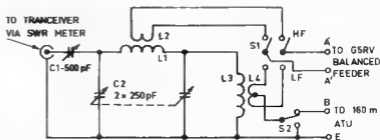


FIG. 1: Modified "Z" match — original from Radio Communication Handbook, RSGB, p.13-37, Fig. 13-60.

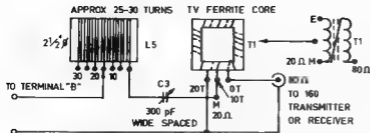


FIG. 2: Antenna tuning unit for 160 Metres.

on the transceiver may be monitored at the same time, but it is inadvisable to energise two transmitters into one aerial.

The suggested method of feeding and matching at 160 metres is shown in Fig. 2. Looking into the resonant antenna via L5 and C3 at point M with a noise bridge, for a typical G5RV at about 30 feet height, a read on resistance of about 20 ohms is measured. The transformer T1 consists of a TV timebase ferrite core (2 sections forming a square loop) with 20 plus 10 turns (bifilar wound) to give a 4 times impedance step-up to 80 ohms, into which the transmitter pi-network loads happily.

Select a tap on L5 which permits C3 to tune 1815 kHz when near maximum

capacitance C3 may be calibrated for 1875 kHz for receiving ZL CW stations and up to 2000 kHz for other DX as required. This tuning is useful for reducing BC station overloading of the receiver front end and the resulting beats and harmonics. L5 is a coil of about 25 turns 2 1/2 inches diameter tapped every 5 turns or so. C3 is a transmitting type capacitor of about 300 pF, with wide-spread plates mounted on insulators well clear of the chassis or box and with an insulated drive coupling.

I trust these notes may be of value to those 6-bands-on-one-antenna men, whose band-changing must all be done in the shack, and whose homes must not look like a Communications Unit.

Clancy of the Airwaves

From 'Smoke Signals' January-February 1982

There are fools of every kind and most of them are blind to the folly of the game that they pursue. And they each and all declare that their own particular fare is the finest in the world "if you only knew".

The football fiend loves mud has the fever in his blood and the punter to the bookies gives his cash.

While the cricketer runs up and down beneath the fiery midday sun and the pug lists each other love to bash.

There's the chap in dancing shoes and the musician with the blues while the golfer hits a ball with many whams.

But the maddest of the crowd are the ones who talk aloud — when there's no one there — but them they call them 'ams'!

They hover over a steel box waffle on with VOX. Rave about frequencies voltages and bands.

and they never go to bed for they're funny in the head with the knowledge this sort of thing demands.

If you ask them — which is greater VFO or crystal oscillator they will tell you "you're widely off the beam".

That your finals and transformer are away to some place warmer and DX running barefoot is just a dream.

They have wires everywhere strung from skyhooks in the air and their hobby is the best of all by far. The shack is their home as they're hardly known to roam and their wives — unlike Clancy — can watch the TV! and know where he aro!

Installing the G5RV* in only 80 feet

A CONCLUDING WORD BY "THE MAN HIMSELF"

Louis Varney G5RV

28 MHz) the correct length is 34 feet.

The most efficient arrangement is to use open wire line from the centre of the antenna right back to the ATU. If you can arrange to use a total length of 83 feet you can use a parallel-tuned ATU on all bands. It doesn't matter if the feeder has to be bent due to lack of antenna height. This is illustrated in Fig. 2.

(The length in feet can be converted to metres by multiplying by 0.3048.—Tech. Ed.)

The G5RV antenna may be installed in a space of only 80 feet (24.4m) and will work very well indeed. The recommended arrangement, as shown in Fig. 1, is better than folding the ends back.

Note that many fellows have been using the wrong length for the matching stub when using ordinary 300 ohm TV line. It should be only 29 feet long. However, when using the OPEN WIRE stub (which I prefer for its lower losses, especially on 21 and

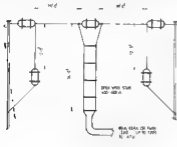


FIG. 1

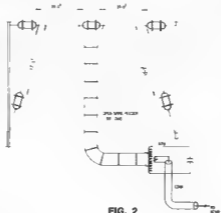


FIG. 2



DX-ing Dolpham

"TIRED OF BEING AN APPLIANCE OPERATOR?"

Lou Iaquinto VK3DFI
Box 90 Beaulieu Vic 3373

Having obtained a novice licence in May 1979 and after finally getting on the air with the help of Eric, VK3KF, I started to hear the expression "appliance operator" bandied about the air waves. I had no technical background and being something of a desk jockey at work, I decided to try my hand at building some gear. This seems quite funny to me now since at that time I didn't even know how to solder on a coax connector.

I started by checking out the local "hobby" electronics supply shop, armed with a parts list from a project in the ARRL Handbook that I thought would be simple enough for a hopeless beginner like myself. Trying to sift through the unfamiliar maze of electronic components and attempting an explanation to a shop assistant that knew as much about electronics as I did turned out to be a nightmare. I gave up on what seemed like a hopeless idea and cringed everytime I heard that dreaded name of "appliance operator".

Finally, I read an article in AR about QRP CW and the Heathkit HW-8 was pictured. I talked to other amateurs about Heath gear and read as many articles on their equipment as I could find in the amateur publications. I was really enjoying CW and was almost QRP since all my operating was accomplished with a TS-120V and its low power. I decided that for me, an all solid state CW only transceiver for 80 to 15 metres in kit form would be my salvation.

KIT

The first two hours of construction time were spent on making sure all the parts were there. They were! This was very helpful for the beginner because one learns how to identify common components. Sure, it's easy to read about capacitors when you're studying for your novice call but when a parts list calls for silver mica, green caps and disc ceramic it gets scary. The Heathkit soved this problem for me. The instruction manual includes sketches of each and

every component making them easier to recognise. The kit includes everything you need right down to the last nut and bolt.

The step by step instruction manual is superb. Each part is listed separately along one side of the page and there is a sketch of the circuit board showing the exact position of every component. The circuit board itself is a beauty. The shape and value of each component is printed on the component side of the board and all the wiring connections are lettered. There are also excellent easy to read diagrams for connecting the various controls and wiring. You simply follow the instruction manual step by step and check off each component as you go. Nothing could be simpler than that. If you know how to solder and follow directions, you cannot fail. The learning takes place in reading the circuit description and following the circuit diagram.



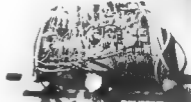
Component place is uncomplicated.

Total construction time was about thirty hours. The experienced builder could probably cut this time in half. Also, I am color blind. I had to double check every resistor on an ohm meter before mounting. After building this kit I don't have any more problems with the color code!

ALIGNMENT

Aligning the VFO was a tricky process but you don't need any fancy test equipment to accomplish this. A VTVM with an RF probe, a calibrated receiver and a signal generator are all that's required. My TS-120V filled the bill for the receiver and signal generator.

Every amateur should own or have access to a VTVM or multi-meter and the RF probe is a useful tool that is possible to build very easily. The Heathkit instruction manual includes a circuit for an RF probe.



The completed Circuit Board.

The only problems encountered were during the alignment procedures which I followed incorrectly. After reading the instructions a couple of times I discovered my mistake and the rig worked fine. That first QSO with a rig you've built yourself is a great feeling. So far, DX worked with this rig includes FK8, W's, G's, OK and of course JA and ZL. The HW-8 runs a DC input of 2.5 to 3.5 watts.

EXPERIENCE

One thing about operating a rig that you've built yourself is that you know every component that went into it. If it breaks down you should be able to find and repair the problem.

I suppose it's important to mention that I am in no way connected with the Heath Company or their Australian Distributor. I do believe the kit is overpriced but the knowledge and experience gained from completing such a project is priceless.

Once you start operating some "home-built" gear you'll be surprised to learn how many people who complain about "appliance operators" are just that themselves.

Now let's see some modifications would be nice, how about an RIT control.



It is extremely important to be well organised.

29MHz AMATEUR BEACON HITCHES A RIDE whilst EOSCOR 3 LOOKS FOR SOLAR NEUTRONS

Authors:
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29 Woodcrest Road, Vermont, 3133
Brian Denehy,
Physics Department, RAAF Academy

Early in December the Physics Department, RAAF Academy, in collaboration with Case Western Reserve University, Cleveland, Ohio, will launch a 15 million cubic foot helium filled balloon from Alice Springs Airport in Central Australia. On board the payload attached to the balloon will be a high energy neutron detector — and a beacon on the 29 MHz Amateur band. The beacon, built by Mr Les Jenkins VK3ZBJ and Ash Nallawalla VK3CIT may be used to locate the payload if it happens to be released from the balloon in a reasonably accessible location.

It is planned to allow the balloon to circle the earth as many times as possible. Each rotation will take about 250 hours.

The main aim of the experiment is to observe neutrons created by energetic processes in solar flares. To date, no scientists have been successful in having a large neutron sensitive detector at altitude during an energetic flare to detect the neutrons thought to be produced in such a flare. The detection of solar neutrons would establish a new observational channel for the study of the large solar flares which affect the solar-terrestrial environment in many ways.

Events which could cause significant neutron fluxes at the earth are rare, even at solar maximum, but it is hoped to observe at least one such flare over the duration of the experiment.

In this experiment, the balloon will rise above the tropopause and will oscillate in height due to diurnal heating effects, with an average height of about 35 km.

The EOSCOR (Extended Observation of Solar and Cosmic Radiation) detector consists of two one metre square plastic scintillator elements separated by one metre for time of flight measurements, with anticoincidence scintillators above and below the main detector. Neutrons incident on the detector produce a proton via n-p scattering or a reaction in the upper target scintillator, and the proton's velocity is determined by the time of flight between the elements.

Isosynchronous adiabatic light guides on all sides of the scintillator elements are used to help correct the time of flight measurement for inclined particle trajectories, and to improve the uniformity of pulse height measurement.

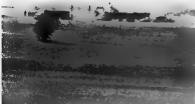
With this system, a solar neutron event will be identified by an increase in the neutron counting rate over the atmosphere neutron flux caused by cosmic rays, correlated in time with the solar flare.



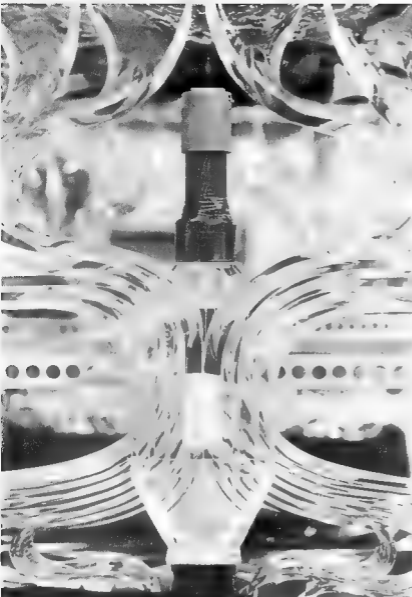
Overall view of the payload



Early stages of the balloon flight



A typical balloon launch



Isochronous adiabatic light guides which are used to help correct time of flight measurement and improve uniformity of pulse height measurement.

Processing and transmission of data is of great importance with an airborne experiment. Telemetry is via an uplink to the GOES geostationary satellite with a very low bit rate effectively 50 bits per second, and so considerable night data processing and reduction must be performed, given the maximum 20 kbit per second data rate. The experiment uses a Motorola 6800 microprocessor, in conjunction with an AMD9511 arithmetic unit to execute data reduction control formatting of the compressed data transmission, record data on two onboard cartridge recorders and control its live time.

Power for the experiment electronics is provided by 22 silver cadmium cells in series

giving a capacity of 40 Ampere-hours. The batteries are charged by lightweight solar panels, each of 40 Watt peak power, with 12 of these panels being suspended across the top of the payload package.

If you come across a signal on about 29.300 MHz, call sign VK3COT/AM, don't be alarmed, it will be EOSCOR 3 circling the globe

QSLs to VK3CIT

Acknowledgments and thanks for their help with this article to:
Professor John Thomas,
Owen Mace,
Glen Frye,
Alan Owens,
John Panietieri.

"TWO METRE EME IN THE SOVIET"

VHF/UHF activity in many Region III countries receives publicity in the various national journals but, in general, little is known of such activity in those Soviet countries that neighbour Region III

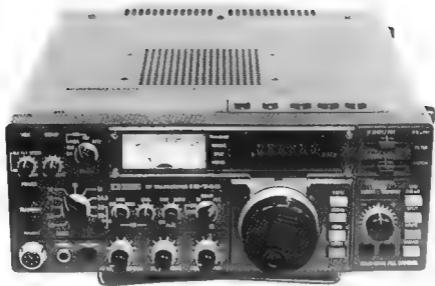
The journal "RADIO" is published regularly by REF in Moscow and from time to time information about ultra shortwave (as VHF/UHF work is known in Soviet Union) activity is published.

The following piece appeared in "RADIO No. 5 — 1982" and we are indebted to Dex Anderson for the translation into English from the original Russian.

D. H. RANKIN
9V1RH/VK3QV

UB5JIN, with assistance from UB5JFR and UB5JMR, erected a new F9FT antenna of 8 x 9 elements. Its span is 6.6 x 2.5m, the width of the main lobe of its gain is 20 to 21 dB, and its SWR is 1.2. The result was not slow in showing up. On 6 December the first EME-QSO within the USSR took place between UB5JIN and UA3TCF. For about 45 minutes the partners literally "fished out" signals one from the other but the necessary exchanges of information nevertheless took place. That day both operators heard a rare station — VK5MC, the lone representative of the Austral continent for EME contacts. For communication he uses an antenna with generic (by amateur standards) measurements — a horizontal rhombic 20 by 200 metres! Obviously, such an antenna can't rotate, so favourable conditions for communications with him only appear for UA3TCF and UB5JIN not more than twice a month for around 20 minutes.

The regular "window" to the USA of December enabled EME stations to log one more Soviet call. UD6DFD worked K1WHS. He used a 2 x 13-element antenna of the F9FT type and a converter with a noise factor of 11 Kto. UA3TCF added to his count of moon contacts. He worked WA4LYS, WD5CRK, KB8RC, VE7SL. UG6AD had his second EME contact with K1MNS.



THE ICOM IC-740 HF TRANSCEIVER



EQUIPMENT REVIEW

Ron Fisher VK30M

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Glen Waverley VIC 3150

Perhaps the best way to start this review would be to turn to the April 1982 issue of *Amateur Radio* and read the review of the IC-730. The new IC-740 has a lot in common with the earlier model and certainly overcomes many of the criticisms that I made in that review.

With this in mind, I feel that the best way to start, is to compare the 740 to the 730. After all, many prospective purchasers will be doing just this. In other words, is it worth spending the extra dollars?

Getting hold of an IC-740 was not an easy task to start off with. It seems that they are unavailable in Melbourne, at least at the time this review was written (late October) but as luck would have it, Andrews Communications Systems of Maroubra Junction, Sydney had plenty in stock when our advertising man John Hill VK3DKK called on them recently. They kindly offered one for review which John brought back to Melbourne.

Well let's look at the 740 and see where it differs and where it compares with the 730.

In appearance the two are similar. It is quite easy to pick the family resemblance of the two transceivers. Band coverage now includes 160 metres plus of course all the amateur bands from there up to ten metres including the new WARC bands. As with the 730, the 740 is an amateur band only transceiver, it does not have general coverage receive capability. Its nice to see 160 metres included, but you just cannot win. In my review of the 730 which did not have

160 but had a very good AM facility, I said it would be good to have 160 to make use of the AM. Guess what — the 740 does not have AM.

The 740 is larger and heavier than the 730. The dimensions are: 111mm high, 286mm wide and 374mm deep which represents an increase of 17mm, 45mm and 93mm over the 730. Even so, the 740 does not look over large and when it is considered that it is possible to fit an AC power supply inside the cabinet, then the 740 would be by far the most compact complete transceiver available at the present time.

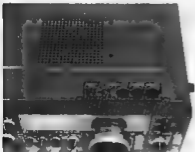
Our review transceiver was not supplied with a power supply and all tests were carried out using the recommended ICOM IC-PS15 external supply. It seems that the internal supplies are not available at the moment and there is no information about them, even in the 740 instruction manual.

The height increase to 111mm now brings it up to the same height as the IC-720 and all the matching ICOM accessories such as the power

supplies, antenna coupler and linear amplifier. This overcomes the problem of non-matching ancillary equipment, but, the cabinet of the 740 is finished in a different colour to all the existing ICOM gear. The front panel's match OK but the 740 cabinet is now a mid grey, several shades lighter than older equipment. However let's put the cosmetic issues to one side and look at the electronics of the 740.

Some of the new features incorporated in the 740 include: Selectable IF shift or band pass tuning, a notch filter, normal or wide noise blanker, selection with separate level control now all on the front panel, continuously variable AGC decay time from off through fast to slow, a squelch control usable on all modes, an audio tone control and an RIT usable on both transmit and receive. Coupled to all of this is the proven ICOM tuning system as used in the IC-730, which includes variable rate tuning with 10Hz, 100Hz and 1kHz switchable options. Dual independent VFO's with a

memory for each band provide a very flexible tuning system. The present controls of the 730, that were hidden under the top patch, are now either repositioned to the front panel or on a very neat control pane on the top front of the transceiver just above the digital display. Additional status indicators have been included for receive, split VFO operation and memory as well as a transmit indicator. These are all positioned vertically between the 'S' meter and the digital frequency display. As an option it is now possible to fit an electronic keyer with the speed control doubling by the VOX gain control. Another option is FM which could be useful in conjunction with a VHF converter or perhaps on the FM portion of 10 metres.



Top panel controls inc. calibrator on/off, calibrator level output, transceiver calibrator and anti-VOX.

Interconnection facilities have been greatly increased on the rear panel, with the most obvious improvement being a separate T/R control for linear operation and the memory backup terminal. These were combined with internal selection on the 730. Other additional rear panel connectors include, ALC output, transceiver output, receiver input and output, RTTY keying input and even a spare connector. Perhaps the only things missing are an IF output for connection to a monitor scope, but no doubt this could be connected to the spare terminal and a phone patch in and out, which is available via the rather inconvenient 24 pin socket. Metering has been improved with a six position selector on the front panel giving read points for IF, ALC, Compression, relative RF output, SWR set and SWR read.

A preamp input switch allows the RF amplifier to be switched out to improve strong signal handling. As we shall later see, this works better than on the IC-730.

THE IC-740 ON THE AIR

Like most modern transceivers the IC-740 requires no tuning up. Just connect an antenna

with a matched 50 ohm feed line or present a 50 ohm load in any other way and you are under way. The tuning is very smooth, but lacks the spin of the earlier ICOM transceivers. For most requirements, the 100Hz tuning rate is excellent. The 1kHz rate really gets you to the other end of the band in a hurry.

In terms of tuning knob rotation, the 100Hz rate is equal to 1kHz per revolution, the 100Hz, 10kHz per rev and the 1kHz equals 100kHz per revolution.

Received audio quality was generally very good with plenty of audio output. The continuously variable AGC did not come up to expectations. Even when set to the full slow position, the decay time was too fast, particularly on strong signals. With a variable system why not make the slow setting too slow, then everyone should be happy. The IF shift / pass band tuning did not come up to expectations. When used, each produces a similar effect and of course to achieve the best results we need to have both operating together. With the IC-740 only one can be used at a time. They are certainly useful in removing interference but of course when the selectivity is reduced in one direction only, there is a limit to how far one can go and still retain intelligibility. With both systems in use it is possible to narrow the band pass from both ends and so retain a balanced response. Perhaps ICOM might rethink this with future models.

The IC-740 also has a filter switch (just below the IF/BPT switch) which apparently allows the selection of an additional filter in the 455kHz IF. Unfortunately the English handbook makes no mention of just what is available to go here. The Japanese handbook seems to cover this in some detail but my Japanese is not up to translating it.

In fact, the selectivity appeared to be very good and with a touch of either IF shift or band pass tuning it was amazing just what could be pulled through the ORM.

The dual VFO's allow one to leave one set up on your normal operating frequency and to tune around the band with the other. In addition to this the memory facility can be set up on another frequency for instant selection. A completely separate frequency can be selected for each band with the exception of 160 metres which shares the memory with 80 metres. On transmit, the 740 operates very smoothly. Output power can be set to any level from about 10 watts to maximum with the variable drive control. Quite handy if you enjoy a bit of QRP operation. Setting the microphone gain control seemed to be non-critical but reports on air were not all that complimentary. However, using the compressor improved things to a marked extent. The audio level came up and also the high frequency content of the signal came up. Reports also indicated that the slight edginess that was apparent before had disappeared.

Back to the receiver side: it seems that the noise blanker on our review transceiver was completely inoperative. Just as soon as I can get to another IC-740 to check out the blanker I will report on this important aspect. However, one plus for the blanker is that all controls are now located on the front panel. The blanker and AGC controls are rather small and closely spaced for my clumsy fingers but certainly a vast improvement on the miniature hidden controls on the 730.

Metering is very good with most required functions available. It is certainly a great idea to have a built in SWR meter. The forward set for this is actually the RF power control. Other meter functions include RF out (preset), compression, ALC and final amplifier current. The 'S' meter function is automatically selected on receive.

Now to the pre amplifier. The action of the

preamp on the 740 is very different to the 730. Receiver sensitivity seemed to be excellent with the preamp switched out with the gain coming up noticeably when the preamp is switched in. I would say that, in most instances, you will be happy to leave the preamp out. Strong signals certainly sound better without it and I could not actually find a case where I could copy a signal with it in that could not be copied with it out.

THE IC-740 ON TEST

The following equipment was used to produce our figures on the IC-740: Drake WA watt meter, Yaesu YP-150 watt meter, 50 ohm load, Kenwood SM-220 monitor scope, Daven audio power output meter, AWA F242A noise and distortion meter, AWA G230 Low distortion audio oscillator, 100kHz crystal calibrator.

FREQUENCY STABILITY

Stability was checked against VNG on 7.5MHz and it proved to be of a high order. Over a one hour period, drift did not exceed 100Hz. It was noted that tuning over a strong signal from my external crystal calibrator, that with each 100Hz tuning step, the beat note would vary about 50Hz over two or three second period, and then would stabilize. In normal use this would not be noticed.

POWER OUTPUT

Power output was measured with full drive under CW conditions and checked for PEP output using the monitor scope. While doing this, it was noted that there was no output on the 18 and 24 MHz bands. It is assumed that operation on these bands has been inhibited in some way, but no mention is made of this in the instruction book.

| | |
|-------------------|-------------------|
| 1.8 MHz 90 watts | 18.0 MHz NA |
| 3.5 MHz 95 watts | 21.0 MHz 75 watts |
| 7.0 MHz 85 watts | 24.5 MHz NA |
| 10.1 MHz 85 watts | 28.0 MHz 40 watts |
| 14.0 MHz 80 watts | |

The low output on 28MHz is a surprise. As the IC was also low on this frequency, it would appear that the drive to the final was down. PEP output on all bands appeared to be slightly higher than the above figures, perhaps by around 5%. The scope pattern was very clean at all times.

RECEIVER TESTS

The receiver output was terminated with an 8 ohm load and connected to the noise and distortion meter and the power output meter. Residual noise with the audio gain at zero was -49 dBm unweighted and -42 dBm weighted. This is a marginal result and accounts for the noticeable hiss when headphones are used.

Maximum audio power output is 4 watts but at 32% distortion. If nothing else, this proves that the transceiver has loads of gain to drive the audio output well beyond its normal output capability.

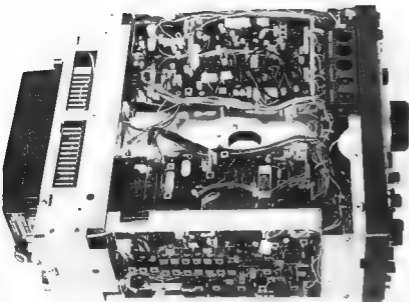
At 2 watts output, distortion had dropped to 1.8% where it remained constant as the power output was dropped. This is quite acceptable. Receiver audio response was checked by tuning across a signal produced by an external crystal calibrator. The -6 dB points were at 350Hz and at 3kHz. The curve was very smooth between these points with no peaks or dips.

The action of the tone control was next tested. At 2.5kHz it was possible to reduce the output by 20dB. At the same setting it was down 15dB at 1.5kHz, 11dB at 1.0kHz and 8dB at 700Hz. This shows why the overall level of the received signal dropped when the tone control is used. A sharper top cut is required that does not effect the response around the 1kHz mark.

The notch filter was checked at several points across the response of the receiver. It was able to produce a consistent notch of -24 dB at any frequency. In terms of 'S' points, it



Rear view shows various connectors and facilities — note cooling fan.



IC 740 with cover removed.

could reduce an 'S'9 beat note down to about 'S'2. This is very satisfactory.

Receiver AGC action was checked by feeding the crystal calibrator in to produce signal strength readings of S2, S8 and S9+20dB, the relative audio output level at each point was then measured. Using 'S'2 as the reference, the output increased by 2dB at S8, another 1 dB at S8 and 7dB at S9+20dB. Above this signal level, the increase flattened off. This is not considered a particularly good result.

The IF shift and band pass tuning were checked by measuring audio frequency response with the slider control set well to one side and then switching from one function to the other.

With the IF shift selected, the band pass remained the same but was shifted in relation to the signal. The pass band tuning on the other hand increased the selectivity but in one direction only. Both systems were able to produce a -10dB reading at 1.3kHz at the

same setting of the slide control. Of course with the IF shift selected, the response continued out into the opposite sideband where the band pass tuning cut this off at the normal low frequency cut off point. However in use there did not appear to be much difference in interference rejection, due no doubt to the fact that the most annoying interference occurs on the high side of the wanted signal.

As a final test, the audio output was measured with an S2 signal. An output of 2 watts produced, which certainly confirms my earlier comments that the IC-740 has plenty of overall gain.

Sensitivity checks have to be subjective as I do not have access to a suitable signal generator. On ten metres, the 740 heard exactly the same signals and in the same way as my comparative receiver. In other words it's a good receiver but ten metre sensitivity hasn't improved over the last few years.

INSTRUCTION BOOK

Our review transceiver was supplied with two instruction books, one in Japanese and a photo copy of an English edition. The Japanese edition appeared to be very complete while the English one very incomplete. I can only assume, that in time, all owners will receive the proper book. In the meantime, the photo copy will be adequate for normal operational procedures. If I am able to inspect the normal manual in the future, I will comment on it in these pages.

CONCLUSIONS

As we have seen the IC-740 shows many improvements over the 730 but it also shows that in most ways you get what you pay for. For a certain amount of money you cannot have everything. However, that said it must also be said that the 740 does give a lot for the money spent. Many of the features are not available on other transceivers in the same price bracket. Such things as the dual VFO's, memory system, three speed tuning and the possibility of a built in AC power supply all in an extremely compact unit. The IC-740 would have to be highly recommended. All enquiries regarding the ICOM IC-740 should be directed to ANDREWS COMMUNICATIONS SYSTEMS, Shop 7, Garden Street, Maroubra Junction, SYDNEY, N.S.W.

SERVICE BULLETIN

FT-230R REPEATER MODIFICATION

The FT-230R, as purchased, is set to operate in S simplex Mode, Repeater Mode and Reverse or "Anti-Repeat" Mode. In Reverse Repeater Mode the memory system is not functional, and the FT-230R operates + 600 kHz as if it were a 600 Repeater.

This modification converts the FT-230R for "+/- Simplex/— Split (+ 600 kHz). The memory system operates in all three modes.

Remove the 4 screws at the rear of the set and 2 screws on each side which hold on the covers. Remove both covers and unplug speaker leads. Remove the 4 cheese head screws near the front of the unit, 2 per side (not the countersunk screws). Remove the 2 screws holding in the control unit PCB board, also the stand offs and screw holding in the switch unit. Carefully move these circuit boards to expose the back of the "RPT" switch. Remove knob,

nut, and washer from the "RPT" switch, and remove from the case. Cut the green wire from the switch and resolder to the contact near the black wire of the switch (see Fig. 1). Replace the switch, knob, both PC boards and screws.

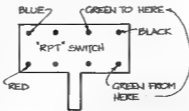


FIG. 1

Locate the CPU IC on the control unit (large square IC on second vertical PCB in front of unit) and the circuit board glued on top of the CPU. Remove green wire and

resolder on to the pad next to the anode end of the diode which connects to the same board (see Fig. 2).

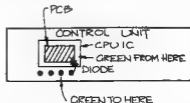


FIG. 2

Re-assemble the radio and remove "REV" sticker on "RPT" switch on front panel ("RPT" switch now reads "+/- Simplex/—").

This information has been kindly supplied by Dick Smith Electronics, Technical Bulletin No. 74.

EVALUATION AND ON AIR TEST OF ICOM IC-740

Serial No. 01141

| CATEGORY | RATING | COMMENTS |
|---|--------|--|
| APPEARANCE | | |
| Packaging | ** | Foam inserts. Strong carton. But not quite as good as previous Icom |
| Size | **** | Considering power supply can be built in, very compact |
| Weight | *** | Only 8Kg. (Less power supply) |
| External Finish | *** | Very well finished. Clean appearance. |
| Construction quality | **** | Typical ICOM quality. |
| FRONT PANEL | | |
| Location of controls | *** | Some controls rather small but reasonably placed |
| Size of knobs | *** | See above. |
| Labelling | *** | Clearly labelled. |
| Meter | *** | Clearly calibrated and well illuminated. |
| VFO knob action | *** | Smooth. Three tuning rates. |
| Dial readout | | |
| Analogue | Na | |
| Digital | *** | Bright. Accuracy reasonable. Does not slow RIT frequency shift |
| Status indicators | *** | Five indicators. Better than previous model. |
| REAR PANEL | *** | Most required facilities available. |
| RECEIVER OPERATION | | |
| VFO Stability | **** | Very stable. See test section. |
| Digital dial accuracy | ** | Needs to be calibrated but good accuracy after that |
| Analogue dial accuracy | Na | |
| Memories | *** | One memory for each band except 160 (same as 80 metres) |
| Shift/width | ** | Both provided but only one usable at a time. |
| Notch filter | *** | Produces good null |
| Peak filter | Na | See test section of text |
| Spurious responses | **** | A few very weak beats. Not audible with antenna connected |
| 'S' Meter | *** | Smooth and realistic response. |
| AGC performance | ** | Although continuously variable, not sufficient decay range |
| | | Also see test action of text. |
| Signal handling | *** | Very good, but extra decay would help strong signals. |
| Clarifier | *** | Selectable for transmit, receive or both |
| Sensitivity | *** | On a par with other current models. |
| RF attenuator | *** | Preamp in/out. Works better than most. |
| RF gain | *** | Progressive action. |
| NOISE BLANKER | | |
| The noise blanker in our review transceiver did not appear to be working at all | | |
| QUALITY OF RECEIVED AUDIO | | |
| Internal speaker | ** | Reasonable quality |
| External speaker | Na | External unit available as option. |
| Headphone output | ** | Quite a bit of hiss audible at low volume setting. |
| Cooking fan noise | ** | Fan only operates on transmit, but fairly noisy |
| Tone control | ** | HF cut not sharp enough. Drops overall audio level |
| | | See test section of text. |
| TRANSMIT OPERATION | | |
| CW & PEP output | *** | See test section of text |
| Audio response | ** | Rather harsh quality. Not judged on air as first class |
| Audio sensitivity | ** | Essential to close talk microphone for full output |
| Monitor | *** | Worked well, but level not compatible with received audio |
| ALC action | *** | No flat topping noted on scope. |
| Compressor | *** | Most effective. Reports indicated improved quality when used |
| Metering | *** | Several functions selectable |
| Relay no se | *** | Quite low. |
| VOX Operation | *** | Good range of adjustment on gain, delay and anti-rtp |
| Cooling | *** | Final runs cool under normal temperatures |
| MANUAL (Owners handbook) | * | |
| Only photocopy of English handbook supplied. Did not seem complete | | |
| Further comments | | 1 Not selectable sideband. Necessary to retune 3kHz when changing to rev sideband. |
| | | 2 If VFO knob is spun fast on 10kHz position will jump to 1kHz steps. |
| | | 3 I like the SSB NOR/REV switching which obviates switching sidebands when changing bands. |

Rating Code: Poor * Satisfactory ** Very Good *** Excellent ****

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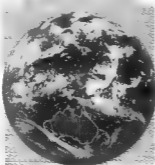
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THE CALL BOOK 1982-83

presented by Australian Amateur Radio



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THE SUPER DEFIANT HALLICRAFTERS SX-25

(A pre-WWII General Purpose and Amateur Band Receiver)

Allan Shawsmith, VK4SS

35 Whynot Street, West End
Brisbane, 4101

The USA is often referred to as the home of private enterprise, where every market has a caterer. This was certainly true for the early wireless experimenter; as long ago as pre-WWI, component manufacturers saw to it that the homebrewer could purchase readily all the bits and pieces that his expanding hobby required. Then, after the first World War, complete kit sets and units began to appear, viz, 2, 3 or 4 tube transmitters and receivers etc., and many of these were sold — but, even so, a large body of experimenters preferred the challenge of building their own.

It was not until the late twenties or early thirties, when the superheterodyne circuit had been developed and proved itself vastly superior, that the amateur began buying the receiving section of his rig off the shelf. In those days, to assemble this type of set required a fair degree of constructive skill, many hours of labour and extra test gear, if the end product was to perform anywhere near its optimum. No doubt all this, plus the attractive appearance of the commercial equipment coming onto the market influenced the amateur to dip into his hip pocket for an 'instant ready-to-go plug-in unit'. One of the most popular of these during the late thirties was the SUPER DEFIANT SX-25, a general purpose and amateur band receiver, produced by HALLICRAFTERS. Earlier reviewers saw fit to describe it thus

"The engineers of the Hallcrafters Co have embodied in the Super Defiant Model SX-25 Receiver every worthwhile advancement that has been made in the communications field the user should find in this receiver the complete answer to his reception requirements."

FREQUENCY RANGE

The Super Defiant tunes from 540 kilohertz to 42 megahertz in four bands. The frequencies covered per band are as follows

| BAND | COVERAGE |
|------|---------------------|
| 1 | 540 kHz to 1.7 MHz |
| 2 | 1.7 MHz to 5.1 MHz |
| 3 | 5.0 MHz to 15.7 MHz |
| 4 | 15.2 MHz to 42 MHz |

The MAIN TUNING DIAL which appears behind the large escutcheon is accurately calibrated in kilohertz on Band No 1 and in megahertz on the remaining three bands

Note: The accuracy of the main dial calibration will hold only if the band spread condenser is set at minimum capacity, or the position indicated by 100 on the band spread dial, which has been approached by turning the band spread knob in a clockwise direction, or to the right, as far as it will go.

FREQUENCY METER TUNING

The BAND SPREAD DIAL of the SX-25 Model is calibrated so that the operator may determine quite closely the frequency of the signal to which he is listening, on the 10 to 80 metre amateur bands inclusive. The outer edge of this dial is marked off in 100 divisions for additional ease in logging and locating stations

AMATEUR BAND

| |
|----------------------------------|
| 160 metre |
| 80 metre |
| 40 metre |
| 20 metre |
| 15 metre (not calibrated in kHz) |
| 10 metre |

TUBE LINE-UP

- 6SK7 1st RF Amplifier
- 6SK7 2nd RF Amplifier
- 6K8 1st Detector-Mixer HF Oscillator
- 6SK7 1st IF Amplifier
- 6SK7 2nd IF Amplifier
- 6SQ7 2nd Detector, AVC 1st stage of Audio
- 6SQ7 Phase Inverter

- PP-6F6s 2nd Audio output stage
- 6H6 Automatic Noise Limiter
- 6J5GT Beat Frequency Oscillator
- 80 Rectifier (a total of 12 tubes)

CONTROLS AND OPERATION

Reading from left to right, the functions of the various identified controls will be described.

The RF GAIN control adjusts sensitivity by varying the cathode bias on the RF and IF amplifiers (normal method).

The BAND SWITCH allows selection of the frequency ranges. As previously shown, Band 3B is to be used when band spreading the amateur 40 metre band

The SELECTIVITY - AVC SWITCH provides

a means of bringing the signal through varying conditions of interference

The PHONE-XTAL positions are an intermediate step in selectivity between CW crystal and IF sharp. Phone signals must necessarily be accurately resonated when operating in the Phone Xtal position or Side Band attenuation will seemingly reduce the strength of the signal

The MAIN TUNING control is calibrated as described earlier

The TONE-HIGH LOW switch directly below the above control in the 'High' position gives natural reproduction. In the 'Low' position, the highs are cut off, a condition that will be helpful in receiving signals during certain types of interference

The CRYSTAL PHASING is used in its association with the CW Xtal selectivity position

The BAND SPREAD knob allows smooth back-lash-free operation of the separate band spreader condenser and dial

The ANL or AUTOMATIC NOISE LIMITER switch will effectively minimize ignition and similar types of interference. Best results are obtained with the AF Gain control set near the minimum end or lowest output

The AF GAIN control turns the receiver 'off' and 'on', as well as controlling the audio output volume of the receiver

The P TCH CONTROL and its associated BFO OFF-ON switch provide a beat note for the reception of CW signals. The Pitch Control, when the BFO switch is in the 'on' position allows variation of the frequency of the resultant beat note to a pitch most pleasing to the listener. For optimum reception of SSB, a PRODUCT DETECTOR should be added in place of the 2nd Detector circuit

The SEND-RECEIVE switch momentarily removes plate voltage from the tubes in the receiver, so that the set can be made inoperative during stand-by periods

A FROG REMOTE

Con Murphy VK6PM
RMS 237 Via Colles WA 6225

Into the PHONE JACK can be connected any type of high impedance phones, crystal or magnetic, because no direct current flows in the headphone circuit.

The 500 and 5000 ohm terminals are for connections to a loudspeaker or other load of those impedance values. The matching SX-25 speaker should be connected to the 5000 ohm strip. When headphones are plugged into the phone jack the 5000 ohm speaker connection is automatically disconnected.

Unless specified otherwise the SX-25 Receiver operates on 100-125 volt 50-60 cycle current. A universal model is available on special order for operation on 110-250 volt 25-60 cycle current at a slight increase in price.

The Model SX-25 Receiver draws 120 watts at 115 volts 60 cycle alternating current.

SX-25 came into production in late 1939 and retailed for \$99.50 USA, it instantly was accepted by the fraternity. Earl or Hall-Crafters sets of note, built especially for the amateur market, were SKY RIDER (1935, 38, 39), SKY BUDDY (1935, 38), SKY CHIEF (1936), and SKY CHALLENGE (1937, 38) and they provided all the variety and price range needed — however, the most famous receiver of them all, the SX-28 was not produced until 1941, during WWII.

During the pre-WWII period other manufacturers produced receivers for amateur use; to the fore were such names as Colins, Hammarlund, RCA, RME, National, Gonsset, etc. Popular as all these sets proved themselves, the Hall-Crafters model competed successfully with all comers. The company also manufactured transmitters, transceivers and other equipment, much of it being built under license from RCA, Radio Corporation of America. Some idea of the large number of continuously updated models which came off the Hall-Crafters assembly line can be gained by an eyeball of the museum of Chuck Dachis WD5EOG of Austin, Texas, USA. On display, along with other gear, are over one hundred and twenty different Hall-Crafters receivers and approximately fifty transmitters, transceivers and related items — said to be the largest collection in the world (but at it incomplete).

Although Hall-Crafters produced large numbers of the various models, they cannot now be easily obtained — e.g. does anyone have the 4-tube TRF, said to be their first-ever model 1928-30? It would appear they have gone the same way as so much other early equipment! The SX-25 is still a good communications receiver able to meet modern demands even forty-three years after its manufacture. It is now a collector's item — one which is certain worth restoring and displaying.

The main tuning VFO in the FRG 7 receiver tunes from 3.45 to 2.45 MHz. There is sufficient output at its test point (404) to read on a digital frequency meter.

If this frequency is doubled, the top portion of the FRG 7 dial will give you 5 to 5.5 MHz output by use of the following circuit. You now have a remote VFO for any transceiver which uses a 5 to 5.5 MHz VFO.

If a GDO is available the coil with the capacitor across it can be checked to confirm that the slug will tune 1 to the 5 MHz area, but the windings as given should be near enough.

RESULTS

The tuning range 5 to 5.5 MHz should fall near the top end of the FRG 7 dial, approximately between 650 and 800.

If the FRG 7 has been fitted with an extra slow-motion drive on the main tuning knob ease of tuning is excellent. In this case the position of the fine tuning knob (no longer required) can be fitted with a double pole 2-way rotary switch so that the connection to test point 404 can be broken and also the voltage removed from the doubler unit when in "receiver only" position.

The unit is mounted in the FRG 7 in the blank space between the circuit board and battery holder. Some small holes may be drilled to allow power supply wire and mounting holes.

It is advisable to take the power from the choke in the FRG 7 through a 10 ohm half watt resistor mounted on a tag board underneath.

REFERENCES

- FRG 7 Handbook Page 9
- FRG 7 Circuit Q403 & Q404
- FRG 7 Circuit Test Point 404

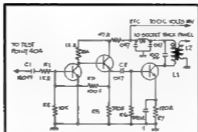


Fig 1: DOUBLER CIRCUIT

All transistors BC 548A

All resistors 1/2W

All capacitors Disc Ceramic 25V

RFC 1st mixer 40 turns 26 SWG

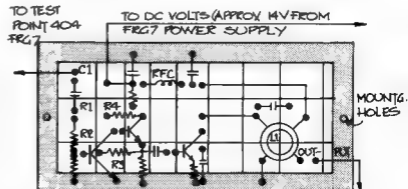
L1 1/2" or 1/4" Slug Former

L2 5 turns at cold end of L1 as shown.

CONSTRUCTION

A simple type circuit board is shown. One piece of single-sided copper-clad 2 x 4 inches (50 x 100 mm) is divided into 24 isolation pads with an earth edge. The components are soldered directly on to the pads.

In the drawing, some components have been identified so as to indicate their mounting. The rest should follow without confusion.



SPECIAL EDUCATION QSP

Brenda VK3KT has available:
Trial Exam Papers —
Theory, Novice, AOCP, Regulations
Past CW Exams from DOC.
10 Exams at 5 w.p.m.
10 Exams at 10 w.p.m.
10 Exams till a C60 tape. Send a tape
and I will copy what you want onto it.
Complaints — or other comments —
about Exam papers?

Make them known to your Federal
Education Officer, VK3KT, QTHR, or
on the Education Net, Wednesday
evenings 12.00 UTC. 3.685 MHz±

SOLDER BY SHORT
LEAD TO NEW
SOCKET MOUNTED
ON REAR PANEL FRG 7



A 20 METRE VERTICAL

LEO WELER VK3YX
46 Paperell Ave., Syndal 3150

This antenna experiment started with a simple telephone call from Holland. Some of my old friends; PA0SQ and PA0CH asked could we make contact on twenty metres, by joining a group of VKs and PAs who were making contact on 14.100 MHz daily.

PRELIMINARY EXPERIMENTS

A d pole was constructed from aluminium tubing tuned matched and set in the correct direction. Despite the good conditions not a whisper came across.

Little effort and material was involved in modifying the dipole to a ground-plane. Tuning was achieved by adjusting the length; matching by bending down the radials. With this antenna we had some results. We received good reports but unfortunately, more often than not, we had to spell our name 'LEO' and QTH, 'MEL-BOLARNE' three times to receive a 'Roger'. While this is sufficient to be awarded a QSL card an improvement is needed for a pleasant contact.

SOME HISTORY

An antenna, popular in the 1950's when most amateurs used open feeders, was the 'u' antenna or the vertical zepp (Fig. 1). The vertical radiation pattern from this antenna with the base one half wave length above ground shows only one main lobe at 15° above the horizon. Yet excellent DX can be expected with the base down to one quarter wave above ground.

We had good results at that time with one constructed from electrical conduit with a steel tank aerial on the top.

Who remembers those days? 'Snowy' Millbourn (Silent Key) must have sold hundreds of tank aerials from his old Ham Radio shop at that time in Melville Street, Hawthorn.

CONTINUING THE EXPERIMENT

This time construction was from aluminium tubing in imperial sizes. This is an excellent telescopic fitting material. First attempt on receive only using an antenna tuner, was a remarkable improvement to the ground plane. This was mainly because the local stations were way down due to the difference in polarization. A disadvantage was,

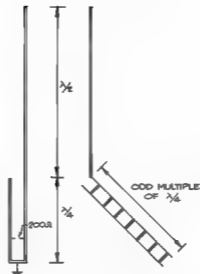


Fig 1: J Antenna. Vertical Zepp

we could not copy the local stations. This created problems in a round-table-local-DX-QSO.

Over the next few days, between daily contacts, the antenna was tuned and matched until the tuner could be omitted. The results were very pleasing. While the other VK's with three element cubical quads, received a 20 dB over S9 report from Holland, we received 5X7 or 5X8 but readability was really 5, no repeating and a normal conversation.

CONSTRUCTION DETAILS

All joints overlap 30 cm and are secured with two zinc plated binding head self tappers 4G x 6mm. 30 mm from the end of the tubes all screws are in line on one side. Use a 2mm drill, heavy screw driver and a tapping action. Flatten top and remove corners.

Two 32 x 25 PVC reducing couplings make excellent insulators. Remove inside ridge and make a saw cut along the length. Clamp the tube in the insulator with a hose clip. A BB bolted clamp is suitable for the final mounting. All this material is available from your local plumbing supplier.

Just to be on the safe side, a 3mm hole was drilled in the top, a nylon washing line threaded through the centre and secured at the top and bottom as a safety line.

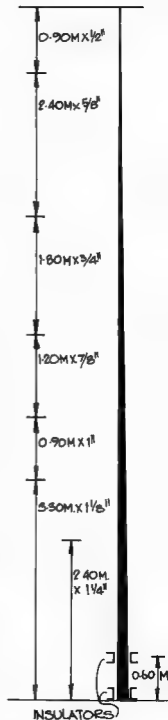


Fig. 2.

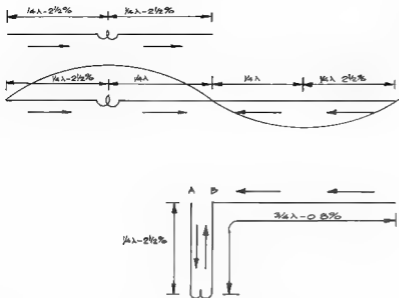


Fig 3: Evolution of the Zepp

A measurements for the 10 metre high, small diameter, light weight free-standing vertical are in figure 2. The top section is shorter than the second section because the recovery to the straight-up position after a gust of wind was otherwise too slow.

TUNING THE EASY WAY

The first attempt using open feeders having half the length of the antenna, a 1:1 balun and two metres of coax connecting the balun to antenna tuner achieved quick results free of problems. As a matter of fact all tuning afterwards did not improve communications.

TUNING THE HARD WAY

Operation without an antenna tuner is attractive, low SWR can only be expected if the feed-point (balun) is exactly on the current loop of the whole system. This can be realised by trimming the dead end feeder. Figure 3 This is critical. Tuning to a specific frequency must be done at both terminals, at B three times the length as A. There are three quarters involved. The length of the vertical is not critical but the total vertical + active-feeder is important. Figure 3 also indicates current direction to show the cancelling effect of the open feeders. Also shown in figure 3, the indicated 25% length reduction is a consequence of end effect.

OPEN FEEDERS

Information on the construction of open feeders can be found in most handbooks and will depend on the material available. Here it was aluminium tubing and perspex spacers. Without a tuning capacitor the SWRs below 1.5 over the entire band.

NEW INFORMATION

Two items not found in text books might be of interest to other experimenters.

Firstly, tuning and matching of an antenna system can be done with an antenna tuner. With a 50 ohm dummy load one calibrates the tuner for 50 ohm in and out at the desired frequency. Note the tuning capacitor position replace load with antenna, and adjust the antenna until the same condition is achieved. The tuner can now be removed to eliminate its losses.

Secondly, with an antenna system accurately tuned and matched close to the high frequency end of the band a capacitor parallel with the coax will do all the tuning needed.

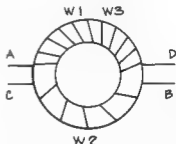
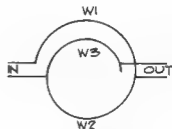
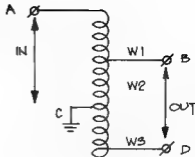
BALUN

If desired, a ferrite-core balun may be made. First wind 5 turns on one half of the core's circumference. Make a tap and then 5 turns on the other half. Make another tap. Continue winding another 5 turns in between the first set. See figure 4. This will give a 1 to 1 balanced to unbalanced transformation.

CONCLUSION

The half wave vertical is the simplest antenna to fulfil the writer's needs at the time. It survived all storms in 1981. Yes, even the one that ripped the roofs off houses and uprooted the trees in the streets.

This is not an antenna to win the GRAND SLAM MARATHON WORLD-WIDE DX CONTEST. Neither is it much use for calling in a pile-up. However, it will contact any station with a signal strength of S7 or more, and that is a lot of stations in a lot of countries.



WINDING 1, 2, 3, 5 TURNS

Fig 4: Balun Winding



QSP

HOW MANY TRANSISTORS IN A COMPUTER?

Have you ever stopped to figure out how many transistors might be used in a home computer? Most home computers have 48K of storage. Now in computerese 48K means almost 50,000. This is bytes, and each byte is 8 bits, each of which is 2 transistors for a minimum of 8 transistors. This means that there are about 400,000 transistors for the memory alone. These memory bits are useless unless there is an input and an output circuit which may consist of 2 for each bit. This brings the number up to 800,000 transistors. Then there is the ROM, the circuits to control the disks, printers, serial devices, tape recorders, etc. This may well bring the total number of transistors up to one million on that 48K personal computer you have in the shack.

Reprinted from: ARMS Bulletin 8 82 AR

THE KOOKABURRA COEFFICIENT

Max Elf VK2PMF

A new approach to the measurement of ERP (the author apologises should any feathers be ruffled)

Due to a shortage of trees, the writer erected a series of antennae for the birds to perch on. Subsequently, an interesting phenomenon was observed, which lends itself to RF measurement, and promises also to be an amusing past-time.

Taking as a stratified random sample a TRF (see below) of nine kookaburras, which had alighted on the driven element of a Yagi-Uda array, the author applied RF and observed the birds' behaviour. A series of controlled tests was then undertaken with a variety of TRFs, resulting in the data tabulated. The amateur need only observe the conditions outlined, consult the tables, and rest assured that output power is responsibly monitored.

THE MEASUREMENT TECHNIQUE

When a group of birds (TRF: transient roosting flock) perches on the driven element of a parasitic array, the operator ascertains their number (counts them). The resulting value is i , the TRF index. RF is then applied (CW mode recommended). The operator must then count the number of birds which have fallen to the ground, and subtract this number from the TRF index.

$$\text{Now } S = (i_{\text{trf}} - n_{\text{bog}}) \times 100$$

Where S = Stun rate

i_{trf} = no. birds on antenna (TRF index)

n_{bog} = no. birds on ground (RF applied)

Consultation of the curves shown in Figure 1 will give a reasonably accurate reading of ERP

NOTES

- (1) The use of native species of birds as at present not approved by the Frequency Management Division of the National Parks and Wildlife Service (Table 1)
- (2) Care should be taken that the rates of dissipation for a given species of bird is not exceeded (See Table 2)
- (3) To avoid crowding the bands with unnecessary QRM, the use of a White Wyandotte as a dummy load is recommended

DC input to pe stage (VSWR 1:1) (watts)

Notes

- Values under area z are of uncertain validity, as they were measured with an air-rifle
- Values beyond point β result in the outright death of the bird, which indicates that the operator is exceeding the terms of her/his licence

KEY:

- A. Eagle
B. Booby
C. Grackle
D. Wren (= current profile)
E. Linnet

| | Sparrow | Mynah | Starling | Chook |
|---------------------------|---------|-------|----------|-------|
| Sulphur-crested Cockatoo | 67 | 62 | 659 | 18 |
| Galah | 48 | 4 | 77 | 19 |
| Black-faced cuckoo-shrike | 2,396 | 66 | 5 09 | 8 |
| Eastern Pratincole | 388 | 12 | 33 | 690 |
| Cape Barren Goose | 0 | 0 | 0 | 0 |

(1: The Cape Barren Goose cannot grip a driven element. It keeps falling off. Webbed feet. (Our thanks to Duck Smith Pty Ltd for supplying the test unit.)

Table 1: Conversion factors, native to introduced species

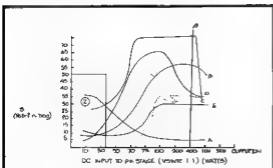


Figure 1: Power curves of five common species of bird

| | Dissipation (w) | Inter-wingtip Capacitance (pF) | Caw Resistivity (oh) |
|------------------|--------------------|--------------------------------|----------------------|
| Budgie | 23 ¹ | 2400 | 780k |
| Noisy Friar Bird | 350 ³ | 3300 | 15k |
| Boobook Owl | 66 ² | 12 | 47 |
| Rufous Whistler | 17 ¹ | 17 | 17 |
| Tuckey Dodo | 400 ² | .01 | 1k |
| Roc | 0 ⁴ | 0 | 0 |
| | 1,000 ¹ | 75 | 76M |

(1. Class A 2. Not Class C 3. Key down 4. Cut-off)

Table 2: Dissipation Ratings for Several Species of Bird (plus associated data)

HF-VHF-UHF ANTENNAS

The ATN range of HF, VHF and UHF Yagi, Log Periodic and dipole antennas are ruggedly constructed for long life. High grade tapered, swaged and seamless aluminium is used throughout. The precision made injection moulded insulators use tough Lexan.

All HF antennas include a 2 KW PEP balun, while the VHF and UHF range are supplied complete with a 200 W PEP balun. Also they may have up to 4 driven elements which provides both high gain and good broadband performance. The UHF range use "N" type connectors on their baluns.

| MODEL (Showing bandwidth and number of elements) | DESCRIPTION | GAIN (dBi) | BOOM (m) | PRICE \$ |
|--|-------------|---------------|-------------|-------------|
|--|-------------|---------------|-------------|-------------|

HF MONO BAND YAGI's

| | | | | |
|------------|----------------------------|------|-----|-------------------------|
| 27-28-3B | 11 metre 3 element yagi | 10.0 | 3.5 | 77 00 |
| 28-29-3B | 10 metre 3 element yagi | 10.0 | 3.5 | 77 00 |
| 27-30-3B | 10/11 metre 3 element yagi | 10.0 | 3.5 | 92 00 |
| 20-30-1 | Rotary 15/11/10 dipole | 2.2 | — | — |
| 20-30-1 IV | C B Base Dipole as above | Suit | 2.2 | or vert po ar lat on |

| | | | | |
|-----------|-----------------------------------|------|-----|--------|
| 14-14-4-1 | 20 metre heavy duty rotary dipole | — | — | — |
| 14-14-4-3 | 20 metre 3 element yagi | 9.2 | 6.0 | 183 00 |
| 14-14-4-4 | 20 metre 4 element yagi | 10.0 | 7.0 | 276 00 |
| 21-21-5-3 | 15 metre 3 element yagi | 9.2 | 4.5 | 122 00 |
| 21-21-5-4 | 15 metre 4 element yagi | 9.9 | 6.0 | 204 00 |
| 21-21-5-5 | 15 metre 5 element yagi | 11.2 | 8.0 | 296 00 |

VHF MONO BAND YAGI's

| | | | | |
|------------|-------------------------|------|-----|--------|
| 50-52-5-5 | 6 metre 5 element yagi | 11.9 | 3.5 | 97 00 |
| 50-53-8 | 6 metre 8 element yagi | 14.2 | 5.5 | 153 00 |
| 50-53-11 | 6 metre 11 element yagi | 16.2 | 9.0 | 194 00 |
| 144-148-8 | 2 metre 8 element yagi | 12.7 | 2.2 | 60 00 |
| 144-148-11 | 2 metre 11 element yagi | 14.6 | 3.8 | 71 00 |
| 144-148-16 | 2 metre 16 element yagi | 17.0 | 6.3 | 91 00 |
| 144-148-13 | 2 metre 13 element yagi | 17.3 | 6.8 | 91 00 |

| MODEL | DESCRIPTION | GAIN (dBi) | BOOM (M) | PRICE \$ |
|-------|-------------|---------------|-------------|-------------|
|-------|-------------|---------------|-------------|-------------|

UHF MONO BAND YAGI's

| | | | | |
|------------|--------------------------|------|------|--------|
| 420-470-6 | 70 cm wideband 6 el | 10.2 | 0.6 | 46 00 |
| 420-470-14 | 70 cm wideband 14 el | 14.2 | 1.5 | 67 00 |
| 420-440-11 | 70 cm special 11 el | 15.7 | 1.85 | 71 00 |
| 420-440-15 | 70 cm special 15 el | 16.2 | 2.85 | 81 00 |
| 420-450-27 | 70 cm wideband 27 el | 16.7 | 3.05 | 101 00 |
| 432-16 LB | 70 cm narrow band 16 el | 17.2 | 3.7 | 87 00 |
| 47-5 | UHF CB 5 element yagi | 9.2 | 0.65 | 46 00 |
| 47-11 | UHF CB 11 element yagi | 17.2 | 1.7 | 67 00 |
| 47-15 | UHF CB 15 element yagi | 18.0 | 2.8 | 77 00 |
| 580-14 | 50 cm ATV repeater 14 el | 17.5 | 2.0 | — |

10/30/9 (useful) near y loaded onst element for maximum efficiency
O A 11.0 Mx on 10m boom available

HF BROADBAND LOG PERIODICS

| | | | | |
|----------|-------------------------|------|-----|--------|
| 13-30-6 | 13-30 MHz 6 el Log | 7.5 | 6.0 | 327 00 |
| 13-30-8 | 13-30 MHz 8 el Log | 9.0 | 6.5 | 409 00 |
| 20-30-8S | 20-30 MHz 8 el | — | — | — |
| | Shortboom | 7.5 | 4.0 | 204 00 |
| 20-30-8L | 20-30 MHz 8 el Longboom | 8.5 | 6.0 | 235 00 |
| 20-30-8 | 20-30 MHz 8 el Log | 10.2 | 8.5 | 306 00 |

RF POWER DIVIDERS

All power dividers are fitted with "N" connectors.

| | |
|-----------|---|
| 140-150-2 | Coupler 2 x 50 Ohm ants to 50 Ohm feeder at 140-150 MHz \$49 00 |
| 400-470-2 | 450-500-2 and 470-520-2 UHF dividers, 2 port \$46 00 |
| 140-150-4 | Coupler 4 x 50 Ohm ants to 50 Ohm feeder at 140-150 MHz \$62 00 |
| 400-470-4 | 450-500-4 and 470-520-4 UHF dividers, 4 port \$57 00 |

Also available power dividers/couplers, quarter wave sleeve baluns and matching harnesses for stacks of two or more arrays; also 1:1 and 4:1 baluns in 200W or 1 kW and insulators for homebrew. Write for free catalogue.

ATN ANTENNAS

ALSO AVAILABLE FROM VIC (03) 873 3939

VIC (059) 79 1975

VIC (051) 55 2777

Dealer requests invited

VIC (03) 570 1888

TAS (002) 47 6674

TAS (003) 31 7075

N.T. (089) 52 2967

FERRITE BALUNS

| MODEL | RATIO | CONNECTOR | FREQUENCY | PRICE \$ |
|------------------|-------|-----------|-------------|----------|
| 3-150-1 1 200W | 1:1 | SO 239 | 3-150 MHz | 14 00 |
| 100-600-1 1 200W | 1:1 | "N" | 100-600 MHz | 18 00 |
| 3-150-4 1 200W | 4:1 | SO 239 | 3-150 MHz | 18 00 |
| 3-100-1 1 1KW | 1:1 | SO 239 | 3-100 MHz | 26 00 |
| 3-100-4 1 1KW | 4:1 | SO 239 | 3-100 MHz | 29 00 |

QUARTER WAVE SLEEVE BALLUNS

| | | | | |
|-----------------|-----|--------|-------------|-------|
| 144-148-50U 2KW | 1:1 | SO 239 | 144-148 MHz | 34 00 |
| 144-148-50N 2KW | 1:1 | "N" | 144-148 MHz | 37 00 |
| 420-470-50N 2KW | 1:1 | "N" | 420-470 MHz | 36 00 |

INSULATORS

ATN Insulators are made available for those who wish to make their own antennas. They are manufactured from tough non-brittle ABS injection moulded plastic.

No 1 for 1/2" or 3/4" elements on 2" boom \$5 20

No 2 for 1/2" on a 1" boom (large size for VHF sp it dipole) \$1 65

No 3 for 1/2" on a 1" boom (small for VHF/UHF) \$1 35

No 4 for 1/2" elements on a 2" boom with 5" positive rake \$5 20

TV ANTENNAS

Designed for extra high gain in poor signal situation on both VHF and UHF.

COMMERCIAL ANTENNAS

A wide variety of commercial antennas can be supplied on request. For example the model 480-512-14 UHF commercial trigger link antenna.

CUSTOM BUILT ANTENNAS

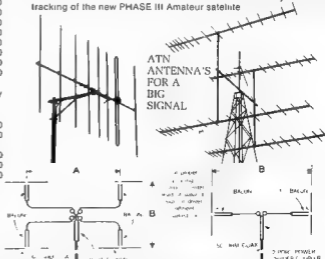
If you have an application but no antenna ATN antennas can probably help you. Contact us with your requirements.

SHORTENED BOOM HF AMATEUR ANTENNAS

On special order ATN can supply a range of shortened boom HF yagis for those with space problems.

PHASE III SATELLITE PACKAGE

This new antenna system due to be available soon has both 144 and 430 MHz antennas mounted on the one sub-assembly to allow tracking of the new PHASE III Amateur satellite.



56 CAMPBELL STREET, BIRCHIP, VIC 3483
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| IC451 | Icom 70CM Multi-Mode Transceiver AC/DC (in built power supply) | \$1,113 | \$890 |
| C560 | Icom Mobile Transceiver, 6M, SSB/FM, 10W | \$643 | \$487 |
| C2KL | Icom Solid-State 1K Linear Amp for IC701, IC720A and IC730 | \$1,793 | \$1,590 |
| Mobile Systems | | Normally | Now |
| IC730 | Icom HF Multi-Mode Transceiver | \$1,021 | \$850 |
| IC490A | Icom LHF SSB/FM Mobile Transceiver | \$726 | \$660 |
| IC360 | Icom Mobile Transceiver, 6M, SSB/FM, 10W | \$643 | \$493 |
| IC25A | Icom 2M FM Mobile Transceiver, 25 Watts | \$456 | \$343 |
| IC290 | Icom 2M Transceiver FM/SSB/CW Mobile | \$674 | \$590 |
| Accessories for Mobile Systems | | | Now |
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| IC-AT500 | Icom Auto HF Antenna Tuner 1KW PEP | | \$570 |
| IC-P515 | Icom Power Supply (15 Amps) for IC720, IC720A, C730 | | \$189 |
| IC-MF1 | Icom Matching Headphones | | \$40 |
| IC-M10 | Icom Jp/Down Scan Mic for IC730, IC451 | | \$51 |
| IC-M45 | Icom Desk Microphone for all 8-pin Icom Rigs | | \$38 |
| IC-F132 | Icom Power Filter IC720A | | \$37 |
| IC-EX205 | Icom Transverter Adapter Unit for IC730 | | \$23 |
| IC-FL44 | Icom SSB 455KHz Filter C730/740A | | \$109 |
| IC-FL45 | Icom CW (AM) Filter 9MHz C730/740A | | \$67 |
| IC-FL30 | Icom SSB PBT Filter C730 | | \$48 |
| IC-M1 | Icom Multi-Band Mobile Antenna (Requires IC-EX202) | | \$322 |
| IC-EX202 | Icom .DA Unit for IC730 | | \$23 |
| IC-F30 | Icom SSB PBT Crystal Filter for IC730 | | |
| C-M85 | Icom Mobile Mount for IC720N/IC730/551 | | \$24 |
| IC-EX182 | .DA Unit for C730 | | \$28 |
| ICP520 | Icom Power Supply (20 Amps) for IC551D With P520/Cable can also be used with C720 IC730 IC740A | | \$255 |
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|----------------------|---|----------|-----------------|
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| HF385 | Jostykit VHF/UHF Pi-amp | \$34 | \$22 |
| JK01 | Jostykit Geosync purpose Amp. 0.5W | \$72 | \$11 |
| AT468 | Jostykit 4-Channel Light Show | \$85 | \$42.50 |
| AT465 | Jostykit 3-Channel Light Show 02 | \$76 | \$32 |
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| CN520 | Dawa X-needle SWR/PWR Meter 19-60MHz | | \$71 |
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| CN630 | Dawa X-needle SWR/PWR Meter 140-450MHz | | \$153 |
| CN630N | Dawa X-needle SWR/PWR Meter 140-450MHz 'N' Conn | | \$173 |
| CN650 | Dawa X-needle SWR/PWR Meter 1.2-2.5MHz | | \$200 |
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| CNA1001 | Dawa Automatic Antenna Tuner 200W | | \$298 |
| CNA2002 | Dawa Auto Antenna Tuner 2.5kw | | \$424 |
| CNW218 | Dawa Antenna Tuner inc. SWR/PWR Meter | | \$177 |
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| CNW518 | Dawa Antenna Tuner 2.5kw PEP | | \$348 |
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| PS-300 | Dawa Power Supply 22A, 9-15V X-needle | | \$226 |
| PS-106A | Dawa Power Supply 13.8V 10 Amps | | \$230 |
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| LA4015A | Dawa Linear Amp. 15/15W 430-450MHz FM | | \$32 |
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| LAG26 | Leader Audio Generator 20Hz 200KHz | \$207 | \$132 |
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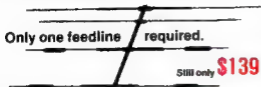
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Solid construction. 8.5 DB gain, 25 DB F/B ratio. Electric band switching means only 1 run of coax is required! This alone could save you up to \$50 (not to mention the cost of an additional coax switch) . . . The use of traps combined with independent reflectors provide top DX performance for the DX enthusiast . . . Excellent value for only \$139.



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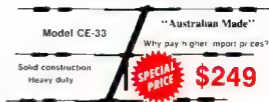
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|------------------------|---------|--------------------------------|-------|
| Gain | 8.5 DB | F/B ratio | 25 DB |
| Power handling . . . | 1kW PEP | Impedance 50 ohm at resonance. | |
| Element Configuration, | | Longest element . . . | 7.4M |
| 3 elements on 15M | | Boom length | 4M |
| 3 elements on 10M | | | |

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Specifications:

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|---------------|---------------------|
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| Max power | up to 2 KW PEP |
| SWR | 1.5:1 or less |
| Impedance | 50 ohm at resonance |
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FT101Z FM



Cat D-2872

DEFINITIONS

Frequency coverage: 160, 80, 40, 30, 20, 17, 15, 12 and 10m. Modes of operation: FM, LSB, USB, CW, AM, Input Power: 180W DC (SSB/CW) 50W DC (AM). Sensitivity: 0.25uV for 10dB S/N (SSB) 0.4uV (AM). Selectivity: 2.4kHz, 60dB (4.5kHz) 40dB. Carrier Suppression: better than 40dB. Spurious Radiation: better than 40dB below rated output. Operating Voltage: 100-240V AC (11.5V with optional conv.). Antenna output impedance: 50 ohms unbalanced.

902 SERIES FT902D



Cat D-2893

SPECIFICATIONS

Frequency coverage: 160, 80, 40, 30, 20, 17, 15, 12 & 10m. Modes of operation: LSB, USB, AM, CW, FSK, FM. Input power: 180W (SSB) 100W DC (CW) 50W DC (AM). Sensitivity: 0.25uV for 10dB S/N (SSB). Selectivity: 2.4kHz, 60dB (4.5kHz) 60dB (SSB). Carrier suppression: better than 40dB. Spurious radiation: better than 40dB below rated output. Power requirements: 240V, 11.5 VA with optional conv.). Antenna output impedance: 50 ohms unbal.

FT107 SERIES



FT107M/DMS

SPECIFICATIONS

Frequency coverage: 160, 80, 40, 30, 20, 17, 15, 12 & 10. Modes of operation: USB, LSB, CW, AM, FSK. Input power: 240W DC (SSB) 80W DC (AM, FSK). Sensitivity: 0.25uV for 10dB S/N (SSB) 0.5uV (AM). Selectivity: 2.4kHz, 60dB (4.5kHz) 60dB (SSB) carrier variable 10m-300 to 2400 Hz. Carrier suppression: better than 40dB. Spurious radiation: better than 40dB below rated output. Power requirements: 240V & 13.5 VA supplies are built in. Antenna output impedance: 50 ohms unbal.

*Can be modified for novice use

Cat D-2871

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FT901D

Cat D-2854

SPECIFICATIONS

Frequency coverage: 160, 80, 40, 30, 20, 15, 10m. Input Power: 180W (SSB), 100W DC (CW), 50W DC (AM). Sensitivity: 0.25uV for 10dB S/N (SSB). Power requirements: 240V.

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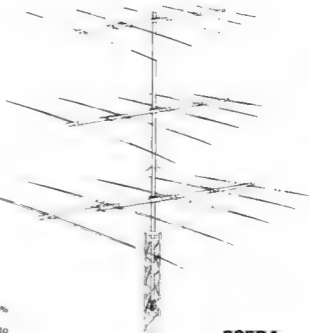
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Fan Unit (for TS 130SE)
Power Source From TS-130SE
Dimensions 150.5 (6.0)W x 89.5 (3.6) mm (inch)
Weight 170g (0.37 lbs.)



DFC-230

Digital Frequency Controller



AT-130

Antenna Tuner



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Be quick for this offer — stocks are limited



TS-830M AM Model

Same deal as above but AM facility for an additional \$30.00 Total price — \$1230.00 A saving of \$235.00 off market price

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HF Low Pass Filter



\$40.00
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TS-660

Including PS-20 Power Supply and SP-100 Speaker.
Now only \$660.00. Usually priced over \$900.00.

Frequency range 21-21.5, 24.5-25, 26-30, 50-54 MHz.
10 Watts.



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(for TS-660)

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TR-7730 2 Metre FM Economy PLUS +

\$129.00. Save \$20.00.

Small, compact, ideal for little spaces in little cars. But they are big on features, performance and reliability. Only \$350.00 complete with mobile 2 metre high gain aerial, base and 12 foot lead worth \$25.00. A saving of \$45.00.



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The BIG 45 Watt mobile with memories to burn — 15 of them in fact. Band scan, memory scan, etc. Unit was \$493.00. Now as a special \$420.00 complete with mobile high gain aerial, base and 12 foot lead.

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TS-600 6 Metre All Mode Base Transceiver

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Best value general coverage communications receiver, over 21,000 Km range Digital readout. Special offer — \$365.00 includes free set of HS-4 headphones valued at over \$27.00. Usual price — \$413.00. Now only \$365.00. Save \$48.00.



• HS-4 (8 ft)
Headphones



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Based on a wide frequency range oscilloscope (up to 10 MHz), the model SM 220 station monitor features, in combination with a built in two-tone generator, a wide variety of waveform observing capabilities. An optional feature is a unique pan-display capability

SM-220

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Either model only \$329.00 including
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- BT-1
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Battery Case

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for TR-2500.
\$15.00.

ST-1

AC-DC BASE STAND
(for TR 2400)

TR-2400 OWNERS

ST-1

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VFO-240
Remote VFO

VFO-240 to suit TS-120/130/530/830

Same as above but larger and color styled for the TS-830/530 series. Reduced from \$159.00 to \$149.00.

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KR-400. Complete with top and bottom mast clamps plus 16 metres of 6 wire control cable. Usually sells for \$180.00, now only \$145.00.

KR-600RC. Complete with above fittings and cable. Reduced to \$240.00 from \$280.00.

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- RD-20
RF Dummy Load (20W
continuous)



\$25.00



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TALKING OF ANTENNAS

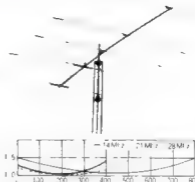
HF Beams — Big!! 3 elements on 20 metres, 4 elements on 15 metres, 6 metre boom — HB-35T.
Save \$20.00 on this 12 dB gain aerial. Only \$390.00.

HF Beam — medium — 3 element on 20 metres, 4 element on 15 and 10, 4 metre boom — HB-34D.
\$299.00, a saving of \$11.00.

SQ-22



HB-35T



AERIALS

2 Metre Swiss Quads — SQ-22 — \$90.00

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DM-81

DIP METER

The DM-81 dip meter is intended for adjustment of radio equipment and antennas.

It is self excited oscillator designed for external coupling to the equipment being tested.

FEATURES

- Measurable frequency range of 700 kHz to 30 MHz in seven bands
- Capacitive probe for measurements without employing coil leads
- Storage compartment for all seven (do meter coils, capacitive probe, earphone and 5 tone clip lead)
- Convenient for both indoor and outdoor measurements, all solid state and built in battery

SPECIFICATIONS

- Power requirements: battery 9V (100P)
- Power consumption: 9 mA
- Dimensions: 70 (2.8) x 180 (7.1) x 45 (1.8) mm (inch)
- Weight: 680g (with accessories approx)

\$90.00 including free battery.

KENWOOD

TS-430S



SAVE OVER
\$106.00 ON
USUAL PRICES.

ALL BAND HF TRANSCEIVER

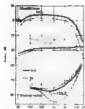
RX — 150 kHz to 30 MHz

TX — 1.8 MHz to 30 MHz

8 memories, memory scan, band scan, AM-FM-CW-SSB (FM optional).

Notch, squelch (all modes), IF shift.

Introductory price \$950.00 (\$999.00 with FM module fitted).



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\$20.60 per 10**



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Rotate your mast from the bottom and use slip ring bearings for your guy wires.

KS-050 — \$22.00 — Save \$5.00

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KS-065



KS-050

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Don't fight with back yard home brew types!! Get the real thing — Commercially made, designed and resaleable with your Kenwood station.

AT-130

Antenna Tuner



AT-130 — \$99.00 — Usually \$138.00

AT-230 — \$199.00 — Usually \$217.00

AT-230

Antenna Tuner



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PS-10

DC power supply



The HC-10 is a highly advanced world clock with dual display which can memorize 10 major world cities and two additional regions.

This world clock incorporating a precise quartz and digital display system, as well as a built-in micro-computer, can also recall and display the starting time of QSO for logging purposes.

**\$95.00
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All items are available from stock at the time of preparing this catalogue. If during this offer period (10.11.82 to 31.1.83) we sell out and a firm order and deposit have been paid, the article or articles will be supplied to you at the prices shown in this catalogue. Except Models TR-7800, TR-7850, R-1000, TS-600, ST-1, SMC-24, SC-3, TR-8400 and VFO-700S.

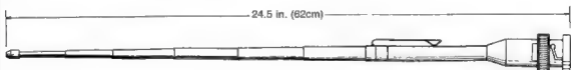
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RA-3 144 MHz BAND 3/8λ Telescoping Antenna

This antenna matches the TR-2500, TR-2400, and any other handi-talkie with 50Ω BNC-Type connector.

24.5 inch (62cm) length yields higher gain and greater efficiency than either a "rubber duck" or a 1/4λ Telescoping Antenna.

Seven segments collapse to 5.75 in. (14.5cm) for handy shirt-pocket storage with supplied spring clip.



\$27 00

KH-M5 MICRO HEADPHONES

RRP \$17.00 each

SPECIAL PRICE TO CLUB MEMBERS \$15.00 each.



KH-M5
MICRO HEADPHONES

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BM-12E

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Video Signal Negative
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(80 characters X 24 lines)

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AUDAX
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| Kenwood 4300, 50W UHF Linear | \$229 | \$130 |
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| Spokane 250 HF Transistorized 250W PEP 5225 | \$179 | |

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| RD Model (plus \$6.50 post) | \$270 |

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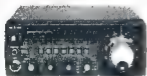


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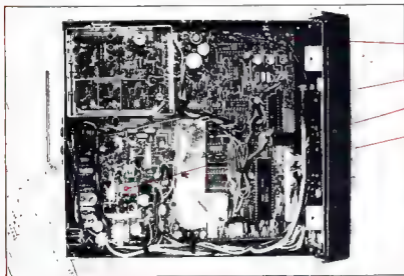
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All books are available from YOUR DIVISION or direct from MAGPUBS (the publications department of the WIA) PO Box 150, Toorak, Vic., 3142 or 3/105 Hawthorn Road, North Caulfield.



HOW'S DX

Ken McLachlan, VK3AH

Box 39, Mooroobarr 3138

That time of the year has caught up with us again, seemingly the year went a little quicker than preceding years. Perhaps this is our modern way of life or is it that we are getting older and time slips by at a greater speed than we realise? Season's greetings are flowing and being exchanged between individuals from all walks of life frequently unknown to each other and meeting for the first time.

These gestures of goodwill and peace are one of the benefits we, as amateurs, are privileged to receive from the fascinating hobby that we have chosen. Occasionally, but very rarely, in our hobby are harsh words spoken and then it is generally in the heat of the moment when one's patience has been tried to the upper limit by the minority of inconsiderates who frequent the bands we enjoy using.

Unfortunately, the manners and code of ethics have declined over the years. The advent of numerous nets and "list takers", for the purpose of working DX, has grown out of all proportion. With it has come the QRM synonymous with being "close to the action", without mentioning the deliberate jamming by those that don't want to play by the rules. Speaking as a Net Controller one gets to dread the time ahead, when you start to get your group together as there will also be someone on frequency that will set out to make life just that little harder whether it be for the NC or the "guy" with the dipole in the middle of Africa trying to give someone a new country.

Amateur QRM is only the tip of the iceberg, when one thinks of the PHONES that have been created in call signs, DXpeditions, OTH's and QSL managers which have been generated by the figment of the imagination in some people's minds. The loss of accumulated man/hours in chasing genuine elusive DX alone is staggering when one conservatively thinks of, say, 5000 DXers trying to work one specific expedition for eight hours of a day to get one card (if they are lucky). The "phones" we can do without!

That example is equal to 40,000 man/hours or a span of four and one half years of one's life. Ladies and gentlemen, is it a waste of productive, recreational or generally just plain sleeping time? Another smile would be a QSL Manager for a station that has worked 8000 QSO's, assume that 4000 QSL direct with say a mean average of 2 IRC's, probably a realistic figure, this represents a purchase value of A\$2600, a cashable value of at least A\$1600. No cards are forthcoming and it is found that the "Manager" has skipped to more exotic places or has further updated his equipment at the expense of his fellow amateur. No consideration on has been given to the multiple attempts that have been made to secure the confirmation.

The dismal scene painted here has, does and will continue to happen, though luckily it is done only by an infinitesimal percentage of amateurs and is by no means indicative of the hobby.

Are you at it going to be in the next "pile up" as I will be there in World Communications Year 1983, a year which promises to be quite interesting, with the advent of such events as the appearance of much wanted DX countries, further deletions from the DXCC current coun-

tries list, maybe a new country will become a valid claim as well as frequency extensions to the American phone band, a change that would change the techniques of all users of twenty metres.

If the phone privileges for US amateurs are extended below 14 200 MHz as presently being considered by the FCC, will the VK DXer's life change dramatically? The new segment could become "kilowatt alley", quite more competitive and forcing the non DXer and weekly scheds below 14 150 MHz which is already overcrowded, according to the stations who break the "Gentleman's Agreement" and nonchalantly chatter away below 14 100 MHz.

The VK novice operator has suffered and is already inconvenienced frequently by the thoughtlessness of those using side-band in a CW only "Gentleman's Agreement" area. Will the RTTY and CW operators suffer the same fate in 1983? CW operators not.

KERMADEC

It is believed that Ron, ZL1AMO has again been denied permission to land and operate from this much-wanted area. Are the authorities so conscious of the ecology that permission is not granted or is there another hidden reason that is not being disclosed? It is now five years since the OMYL team ventured onto Raoul Island. A lot missed the opportunity then and there have been a lot of licences issued since that period.

ERIK SJOLUND SMHAGO

The "South Pacific Extended DXpedition" continues with Erik, SMHAGO having just completed a successful operation of removing KHL, American Phoenix, from the much-wanted list of thousands of DXers. Many VK's may have missed out, as unfortunately, with no preferential treatment with the "split frequency" methods Erik employed, they had to compete with all comers and didn't gain an entry in the log.

Erik caught the DXing bug some eleven years ago whilst on a vacation to Rhodes SV0. He was hooked! DXing then became a part of his work which took him to many far and much-wanted areas. A change of employment, to a position that would involve considerable travelling with the government of his homeland, combined with the pleasant manner and the fact of knowing the correct people through his diplomatic connections that would be sympathetic to reciprocal amateur licensing and operation, have assisted such areas as CR3, S21, TA and XW to be activated by this amiable man.

On retirement, the present mammoth expedition was undertaken, and to all accounts, is progressing very successfully with maybe even a stop off to VK territories next year. All cards, with envelopes for separate call signs (as they are processed in different areas) to SM3CXS. Multiple bands for the one call may be contained in the one envelope to save excessive postal costs.

A4XX OMAN

Those that QSOed A4XX, which was a special events call sign to commemorate the tenth anniversary of the Royal Oman Amateur Society's formation and was used on the 27/28

November on the three bands 10 15 and 20 metres, are eligible for the OMAN Award with Tenth Anniversary Endorsement. Single band contacts are eligible for a special QSL card.

BEACONS

News of two new beacons for those interested in checking 28 MHz propagation.

PY2AMI 28 399 MHz, 10 W Location Americana City

VS6TEN 28 290 MHz 10 W, Location Hong Kong

Add these calls to the 28 MHz Beacon list on Page 34 of the 1982/83 Call Book for future reference.

SIX METRE ACTIVITY

Father Dave, CE0AE has acquired 6 metre equipment which includes a three element beam. Information on the VK 6MHz activity has been forwarded to him via his Manager, Mary Ann WA3HP with whom he has a daily schid.

When Dave finds the time he also hopes to erect an antenna for 180 metres. This will be of interest to quite a number of amateurs in the Pacific.

FERNANDO DE NORONHA

PY0ZZ eventually hit the airways with good signals into VK. Some VK's made a contact by the courtesy of the "list takers", others successfully went it alone QSL's via PY0ZZ.

WANTED

Over a decade ago XU1AA was active, it is now known that at least two amateurs are still trying to track down the card. Any help would be appreciated by Neil, VK6NE and Allen, W8BSE.

FAROEES

Leon, WJ1TIOY has updated his call to OY1KH and will be operating Klaksvik, one of the northern islands of the group. Direct QSL's with return postage will be rewarded by special stamps. All QSL's via the OY Bureau will be 100%. Leon's QSL info is PO Box 184, Torshavn, DK3800, Faroe Islands.

QSL ROUTE VK0AC

Incorrect information regarding the QSL route for Art seems to be finding its way into a number of magazines — Art formerly VK0AC and later operating VK3AOK is now K57ZA. All requests for cards to Art Coolidge, Box 25471 Portland, Oregon, 97225, USA.

CROZET AGAIN

It looks as though George, FB8WG will be relieved by another amateur who will probably be active later this month using the call sign FB8WI, although the actual call sign has not been confirmed. QSL arrangements are unknown.

YASME

Lloyd and Iris Colvin have commenced a tour of the Middle East, according to all reports they hope to activate as many countries that they can obtain licences in during their planned six month tour.

All QSL's to YASME Foundation, PO Box 2025, Castro Valley, CA 94546, USA.

COCOS KEELING

Frank, VK9NYG and his XYL Ann enjoyed the company of Frank's QSL Manager, Neil VK6NE for a fortnight before starting to pack to leave the island after his tour of duty and return to the mainland. This leaves Mike, VK9ZYX and Cress VK9YC to represent this much sought-after country on the amateur bands.

NORFOLK ISLAND

During a recent stay in VK9N Jack VK3LG/9NA, took the opportunity to meet some of the local amateurs.



L to R: Jim VK9NS, Kirsti VK9NL and Jack VK3LG/9NA.



L to R: Bob VK9ND, Mick VK9NW, Jack VK3LG/9NA at Anson Bay N.I.

PROFILE 4U1ITU

Many DXers have enjoyed a QSO with one of the many guest operators at 4U1ITU and at times it is operated by the Secretary of the ITU Ted, F6RU who also manages the station.

The ITU's format on dates back to May 1865 when delegates from twenty European countries met in Paris and were signatories to an agreement setting up the International Telegraph Union that was to provide basic regulations for all of Europe's telegraph systems.

Berlin, in 1906 was host to the first radio conference and at one such conference held in Madrid in 1932, the organisation, recognising its responsibilities, changed its name to the International Telecommunications Union.

The International Amateur Radio Club (IARC) came into existence in Geneva at the inauguration, in 1962, of the new International Telecommunications Union Headquarters building. Allocated the call sign 4U1ITU it commenced operation on amateur bands from 2 metres thru to 80 metres with a station donated by the Hallicrafters Company as a gift of the United States of America.

Today 4U1ITU runs six separate stations that comprise a FT901 complete with external VFO and FL2100 linear, a KWM2A with external VFO facilities and a Drake L4B linear, a Yaesu FT101 coupled to a 30-L-1 linear, a Kenwood TS390S incorporating RTTY plus TL922 linear VHF is catered for with a Kenwood TS700G with facilities for a 432 MHz converter and 2m



Paul, F6EXV operating the KWM2A equipment.

+ linear for satellite operation. Antennas are 2 x 3 element Tri-band yags, 2 x multi-element yags for 2m operation and inverted Vee dipoles for 40 and 80 metres. A 3/4 L sloper is used for 160 metre operation.



View of the Satellite station at 4U1ITU.

Operation of 4U1ITU is open to licensed amateurs who are asked to contribute, by payment of a fee, which is to offset the Club for normal wear and tear and maintenance of the equipment. One other condition is that all QSO's will be QSLed 100% (unless the distant station specifically requests that no QSL is needed).

WORLD COMMUNICATIONS YEAR 1983



4U1ITU



4^e Exposition Mondiale des Télécommunications
4th World Telecommunication Exhibition
4^a Exposición Mundial de Telecomunicaciones

One visitor to 4U1ITU has been Jan DJ8NK/A who did a stint of operating at the station last August. Jan recalls that it was a great experience to use the call sign and whilst he was there four other guest operators were active. The 'shack' had a flow of constant visitors and during his short operating stint they had visitors from CX, DL, EA, F, G, HB, JA, K, ON, PA and SM.



Al, WB8ZJW, Secretary of the Pacific DX Net and Jan, DJ8NK/A



Tony — ex VK9ZD with some of the awards he collected whilst on Willis.



Jill VK6YL receiving another swag of QSL cards from her happy motor cycle postman Ron Imray. Jill is manager for many stations including Andy VK9ZA on Willis Island.

FINDING THAT ELUSIVE PREFIX LOCATION

QUICK REFERENCE TO ALPHABET SOUP UNUSUAL PREFIX LIST



A22, Botswana (A2)
A71 Qatar (A7X)
A=1-AHO, see KH1-KHO
CF-CX, CY-CZ Canada
D44, Cay Verde
EA-EH, Spain
H31, Panama
H44, Solomon (VR4)
HS * Bochulhatswana, S.A. Homeland (ZS)
HD, Ecuador
HG, Hungary
HT, Nicaragua
HW, France
IS, Sprally
J2, Djibouti (FL8)
J3, Grenada (VP2G)
J5, Guinea Bissau (CR3)
J6, Saint Lucia (VP2L)
J7, Dominica (VP2D)
J8, St Vincent (VP2S)
KH-1/AH1-H1/WH1, Baker Canton, Howland
KH2/AH2-NH2/WH2, Guam
KH3/AH3-NH3/WH3, Johnston
KH4/AH4-NH4/WH4, Midway
KH5/AH5-NH5/WH5, Palmyra

KH5, Kingman
KH6/AH6-NH6/WH6, Hawaii
KH7/AH7-NH7/WH7, Kure
KH8/AH8-NH8/WH8, American Samoa
KH9/AH9-NH9/WH9, Wake
KH0, AH0, NH0, WH0, Northern Marianas
KP2/NP2/WP2, American Virgin Islands
KP4/NP4/WP4, Puerto Rico
P41/P42 Netherlands Antilles (PJ2/3/4/9)
P47 Sint Maarten (PJ5/6/7/8)
S4, * Ciskei, S.A. Homeland (ZS)
S8 * Transkei, S.A. Homeland (ZS)
SV5, Dominican
SV9 Crete
SV0, foreign amateurs in Greece Crete or
Dodecanese
T2, Tuvalu (VR8)
T4 Cuba
T4, * Vanda, S.A. Homeland (ZS)
T5, Somalia (80)
T30, West Kiribati (was T3A, T3K, VR1 Gilbert &
Ocean Islands) includes Tarawa, Makin and Ocean
Islands
T31, Central Kiribati (was T3P or VR1 British Phoenix)
includes Canton and Phoenix Islands

T32, East Kiribati (T3L/VR3, Christmas or Line Islands)
TK, France
V2A, Anguila (VP2A)
V3 Belize (VP1)
V9, Vanda (see T4)
VK9N, Norfolk Island
VK9X, Christmas Island (Zone 29)
VK9Y, Cocos (Keeling) Islands
XJ, Canada
XO, Chile
Y21-Y98 East Germany (DM)
YT YU YZ, Yugoslavia
Z2 Zimbabwe (Rhodesia ZE)
ZZ-ZZ, Brazil
1A * Knights of Malta
4K, Russian Polar Stations
4M, Venezuela
4N, Yugoslavia
4T, Peru
6D-6J Mexico
6T-6U Sudan
8J, Japan

* Unofficial prefixes
Derived from NCDICIA

PREFIX HUNTERS

OX9 was used for the first time in August to commemorate the millennium of Eric the Red who was condemned to leave Iceland for three years and flee to OX land. All suffixes were unchanged except for OX3JUL, which used OX9V as it is a Radio Club located in the area that the legendary Eric the Red settled. Cards will be 100% via the Bureau and they would be well worth receiving as it may be another 1000 years before the prefix is used again.

WALLIS ISLAND — FW0 DXPEDITION

A late item from Bruce Johnson VK3DHT advises that he plans to activate Wallis Island (FW0) from 23 11 82 to 4 12 82 incl. He states that he is taking an FT707 and TH3 beam and wire dipoles, and hopes to operate on 80-10 metres. He will be looking around the usual DX frequencies as there are no fixed schedules have been arranged but Bruce hopes to operate as much as possible as conditions allow. QSLs via the Bureau or QTHR in the 1982/3 WIA Call Book, and under VK3YMT in the 81/82 overseas call book. Bruce expects the licence to be issued on arrival at Wallis Island, and hopes to obtain the call FW0BJ.

GREETINGS

To all readers—I would like to extend to you all on behalf of the contributors to this column a very Happy Christmas and hope that 1983 is a year of happiness, complimented by a log book swelled with the "goodies" that will be around.

The quote for the year would have to be from WOPXW, "The biblical job probably would have had a different reputation if he had ever tried to get enough cards for DXCC."

Thanks to one and all for their support throughout the year and Season's Greetings.

THANKS

Some of the publications that have contributed to these notes include 73's, CABALLEROS DEL AIRE, cQX, RSGB News-sheet, REGION 3 NEWS, ORZ DX, W6GQ/K6HHD QSL MANAGER LIST, QST, QTC and WORLD RADIO. Also amateurs including CEOAE, G3NGB, ON8NT, ON7WW and VK's 2PS, 3DFD, PBA/XSO, FR, UX, VL, 4AIX, 6FS, HD, IH, NE, XI and Eric L30042.

POST BOXES YOU MAY NEED:

AP2P PO Box 999 Rawalpindi
C21MD PO Box 316 Nairobi
C59EK PO Box 596 Baku
C8CXS PO Box 37 Montevideo
EAKS PO Box 278 Mexico
ED5FT PO Box 110 Toront Valencia
EP2TY PO Box 83 Isfahan Iran
F0BV PO Box 41 Otepa Hao Island
J0AAB PO Box 251 St Georges
J6LB PO Box 732 Castries St Lucia
P25JR PO Box 566 Paramaribo
T8JJD PO Box 681 Ljubljana
VPR0AS PO Box 102 Port Stanley
YK1AD PO Box 245 Damascus
Z07AL PO Box 25 Helsinki
386FK PO Box 1080 Port Louis
45QDM PO Box 9112 Dar-es-Salaam
5T5ZR PO Box 202 Houatchott

CW WORKED ON THE WEST COAST

18 MHz
G3RDP VESUX VE7BS YV'INX
3.5 MHz
5V4CS KB6AA SMOAGD/KH1 (SM3CXS) T31AF J9H
—(JA08A)
7 MHz
4U1TU S6ARY H80AF H21AS J2805 —(J2805)
4J50DKX KX50B M1C ONDBH OHWV 5V389V VP2MAI
14 MHz
Z2ZD ZM7AG
12 MHz
1ADNM (DMGM) OH2SC/CT3 OX3AX PY0SJ
100 MHz
FP05Z FP8BH G05CTM —(DF65T) T18FR
20 MHz
PY0ZSC
() Denotes QSL route

WORKED ON THE MOVIE BANDS

20 MHz
30ZJR AX5DX —(KA2KWG) 4Z4MY UL7PA VU9JUN
—(G4CHP) VY1CW
21 MHz
30ZCS 4D1LM 9M2EE 9M8PW —(G4DXC) A82P C300H
CE0AE —(WA3HUP) CE38DA CP8CP 0F8MPXZ
DL2KADJ E8W6E F850Z F8R7V HC1LQ HC58Z
H83DM H858Z HP10Z HP18JH —(HAMMAD) IS0V5G
PY3CB PZ1DV TG9CI VK9ZA —(VK5YL) V5SM5 —(N200)
V59MK YC4YU Y51RJ Y530R

WORKED ON THE EAST COAST

20 MHz
30ZDB 4D9RG DX1F G4PQZ GW4QZB, H44PT
H46H, HG5XW, T32AB, T32AF, VE6OK VE6DY
XE2880
21 MHz
4N4TN 4U1VIC* 6DSFX A82P, DL4MAI/HB0
HC8KA, H44FZ, HR1MZM HV2VO Y4FGM, J3A8B
J73HA, KJ17RT KX6QD* 0E8MBG OH4CL*
PZ1DM PZ2MDX TJ2JO, J000AA, VP2EC YV1BJ,
XF1ZW Y59H9H ZC4CW

SSB WORKED ON THE WEST COAST

3.5 MHz
S89AP 8P6OR K6GIN UADLCZ YJ8ND
7 MHz
5R1DIO G5YK 8P6OR H5CB J6LB J73PO OHWV UK2BAS
VPRWJ, JL24PC
14 MHz
CH8CX EL2AD FPF5Z FY7AD H15CB OX3XM -YL
PY0SJ PY0ZSA PY0ZSB PY0ZT T25SH T30DB Y2AK
VY05E V0ZCW
21 MHz
JW7FD PZ1DM UP2MDX YL V3PGL
28 MHz
1ADNM 5V4CS A71UB DL9EJ/J08 E9AKF G03GMY
GUSTU JT1AN SV5HJ VPSWJ, JL4PGC ZM7AG
Z53BAM

14 MHz
4N4BY 4N4TN 457EA 4U1VIC* 4L37ITU 5B4LY
5NBARY 5Y4CI 5Y4DI 5Y4DA 5Y4TL 5Y4RK
—(W27K) 6W8FX 6W8H 81RBF 9K29R 9LDR
S89AP BV2B C30AH* C30DH C31Y5 ON8CV
CN8HO C8BAN DL4MAI/HB0* E8JLV F5RV/FC
(F5RV) FGTBU/F5J FGTBV FR7BP FWDAG*
GB48SG —(G3J0ZB) G630ZB HA3GK HA5HR
H45NF —H45KD*, HV2VO JT1AD K6AV/MRM
—(WEDDH) K67K* L41H* LY2HDY LX1BJ
LZ2AB NL7K* O25FY PY0ZSB PY12AK
SMDAGD/H1 —(SM3CXS) T2GSH, T30BY T32AF*
—(WHAIF), TG9VT, T8BCR JKAIDK* UK2FA*
UKTPAL VPSRAC VP8AF VP8AB YL V09C
(KA4UMB) XZ9A Y1BGD, YK1AO Y08CW*
Y08OK* Y51RT YJ3TCQ/MM, KZ28GT JMT7J

* Denotes CW

28 MHz
DL6WD, NO20/DU2, FK8CF, HLOWB, KX60B,
LU1FNG, T30AT U86HYL, UKSWAS, UJH, UKDLAA,
VE5WQ, VE7APE, KF7X, ZC4MR, 9V1TL

21 MHz
DK4HV FK8EH, F08FW, HA7RO H80NL, HL5GZ,
KH6WC, KX60B, LA8MA PY4ALW T30AT, U93UO,
JBSJFP, J26AO U02DZ, UK8AA, VC2BDG,
YL372T ZL4PQC, 3D2RW 4X6NDF SW1EJ

14 MHz
CT1DY CT2ON, CO3LN, EA4OA, EA8AK, FG7CC,
FK8AA/P, FM7CF, G4DSC H80/DL16K,
W4GSM/H8C H8APF, KC4AAA, KX4VC, LUGCV,
O6BAC, TL8ER, TR8JD, J06AM, U050WC, UK9NL,
VP2MM, VP8ANT, VU2BK, VU9ARC, XE3RT YBSAES,
Y4AJ 3B8FG, 4N4BT 4J1ITU, 4Z4RS 5B4LY,
5Y5AG 9J2LL 9Y4VL

10.1 MHz
DF8XB N7ET/VL5, DL6FZ/EA F5ZL, FK8EB, ZG2GC,
G3GVH GJ3ME, H89BX, H84VC JA1XYB,
JXYZ, OZ1LO P4PFW, VE1ASJ VE7Q UK8HA,
VP2MIX VY1AAE 3D2RJ, 5Y4CS 8P6AU
JA3SVG/MM

7 MHz
CM2TM FBVJ, K04AF, H8BVV, G3GWW, JA3CSZ,
KC4AAA, NL7G, LZ2SC Q1TWT, U05LCR UJ8JRY,
UR2FU, T32AF VU8TTC, YU7AJF, Y41ZMP 3D2RW

3.5 MHz
JA5BJC KX60B

QSL'S RECEIVED (OCTOBER)

CB8AA DF2PI, EA8AU, F8HGM, F08FW, GJ3EML,
G3IRVJ H8BYZ PA3BGB (all for 10 MHz) CE3CEW,
CN8CY, CT2OFM FK8DZ, FM7AV HC7CM H21AB,
JT1KAA and U0Y (zone 23), KP4A LX0RL,
PA0VDV/PJ7 T32AF, U8ADD, U05AP, VP9DR,
V88IC VY5DF, ZK1DX, ZS5SP, 3D2WV, 7X2ED,
9H5NL

QSL MANAGERS YOU MAY NEED —

3D2DX — (SM3CX5), 4K1HK — (JA3AEL),
4X6DX — (KA2KWG), 5Y4CS — (JY7LV),
9M8PW — (O4DXC), A35UL — (K9AUB),
C3ZOL — (EA3BKZ), C31PB — (H89ACL),
C31ZE — (DF6SP), CE0AE — (W43PH),
CN8CY — (GW3IEO), CR8T — (JA4IKZ),
CS4UA — (W3HMK), CU1UA — (W3HMK),
CUSUA — (W3HMK) DF8MP/XZ — (DL2KA0),
ED8MDX — (EA6BE), EK0K — (JA90BO),
FH0FLO — (FR0FLO), FR7BP — (W0XO),
FR7BP — (W0AX), GD5PE — (DJ5PE),
HR1JSH — (W8WOD), JY8JP — (K1JPO),
KC8SX — (JA8OW), KC6WS — (AD1S),
KE8RD/HK0 — (JA1UT), KH6LW/KH7 —
(KH6JEB), NO20/DU2 — (K0LST), N6DPH/DU2 —
(WB3IET), N7DUU/NH0 — (JA1UT),
PY0WW — (PY7WW), SP5IX/OEB —
(PA0NOL), T2AGD — (SM3CX5), T30CB —
(SM3CX5), T69EW — (W0WDX), U2G —
(U2GZW), UK0IAA/UOT — (U01OP),
U0A0DA — (JA3AEL), V3TV — (G3ATK),
VK5ZA — (VK6LJ), VP2MO — (KA4BOT),
VPSJNX — (W5CN), V55MS — (N20O),
VUSUN — (G4CHP)



Have a look at this I've
finally got my own
repeater

from 'Cebaleros del Aire' Translated by Luis WK2LD



AUSTRALIAN LADIES AMATEUR ASSOCIATION

ALARA

Margaret Loft, VK3DML

28 Lawrence Street, Castlemeane 3450

*Season's greetings to all of you and
I do hope you have a safe and happy
Christmas with your families.*

By the time you are reading this, ALARA's
second contest will be over, thank you to all
who took part and we do hope you enjoyed it.
Remember the logs must reach me by 31st
December to be eligible for the certificates.
Rules are on page 46 of October AR magazine.

Daylight saving time is with us again and the
ALARA nets will now be at 0930 UTC, so on
Monday nights look for the girls on 3.570 MHz
at this time until 6th March

Friday nights, on the same frequency and
time, some of the girls have a chat session so if
you are working towards your ALARA award this
is your opportunity to gain the points
needed. Mavis VK3KS, the awards custodian,
has issued over sixty certificates. Remember
the new rules as published in the awards
column of June '82 AR are now applicable.
Contacts made during the contest are also
valid for the award.

NEW MEMBERS

Welcome to ALARA to Connie VK4ATK, Iris
VK4NME: Sue VK2VHG/P2 Sayoko
JH1WWS/3, Kazuo JA1BBH, and Joanne
KABV and we hope you enjoy being a part of
this friendly group

Our thanks to Bev VK6NYL for accepting the
position of librarian and also to Sue VK3VHG/2
who is VK2 state representative. All positions
have now been filled and ALARA is delighted
with the response to the call for volunteers

Remember subscriptions are now due, \$5.00
for VK members and overseas sponsorship
airmail rates, \$3.00 for sea mail rates VK3DVT
Valda Trenberth PO Box 4 Brighton 3186, our
treasurer, will be pleased to hear from you.

If you would like to sponsor an overseas YL
please send details to Valda and a copy of the
current newsletter will be forwarded to her

Also available are teapsons, badges and
charms with ALARA's logo on them. These
would make a nice gift for your YL and perhaps
a subscription to ALARA may start her on the
way to a call of her own. Details from Valda.

Congratulations to all who sat and passed
the exams in August and November. It is a
great feeling to know that a life study has been
worthwhile and you have achieved your aim. It
is just five years since I sat the novice exam
and ultimately want to pass the full call
exam. My OM George VK3AGM offered to
teach a class at Echuca and our son Stephen
and I decided to try for the novice. Stephen is
now VK3BKJ. As a result of the classes thirty
novice licences were issued with most now
holding "K" or full calls. Five of these were
YLs

New calls I have heard on air lately are Bron
VK3NTD, Kim VK3KIM: Dale VK3PEH; Joy
VK4BSJ and David VK7NET. David is a seven
years old and if he is not the youngest novice
around he must be very close to it. Congratulations
David and I do hope you enjoy the hobby,
you must be an incentive to others who are
studying

I would like to thank all the girls for your help
in the two years I have been writing this column
and hope for your support in the future. Photos
are still needed for the column, these help me
fill in and also gives members an opportunity to
"meet" some of our distant members. So
please when you go to a convention or field day
put the camera in and take a spare photo for me

Ballaarat convention was on Sunday 31st
October and I met some of you there. Mavis
VK3KS and Joan VK3NLO also attended

Until next month 33/73/88 to all

WHO IS THIS AMATEUR??



He was born in Essex, UK, on the 14th
of December, 1891 and later became a
crew member of an oil tanker to
Philadelphia, then around Cape Horn in a
windjammer to San Francisco (six months)
Then a windjammer to Sydney (three
months). Enlisted and went overseas with
the first Battalion AIF in 1914 but returned
medically unfit to become a recruiting Sgt
in 1915, and settled in Queensland as a
carrier and motor driver. Licensed as an
amateur radio operator in 1935 he may be
heard on the HF amateur bands any day.
Other than very poor eyesight he keeps in
reasonable health

Can he lay claim to be the oldest active
amateur in Australia???

Yes he is Harry VK4HA Give him a call



HEARD ISLAND, WHERE WE COME



Compiled by Hugh VK6FS of the VK6DX Chasers Club

With the departure date almost upon us, a brief resume of our progress is now presented to give some idea of the magnitude of planning, provisioning, personnel problems and partnership.

Thoughts about how to mount an expedition began slightly in excess of twelve months ago during regular skeds on ten metres between VK6KI and N2DT, when a small spark of hope was kindled that our most isolated territory would again be "heard". Enquiries were made in some possible areas, and eventually we found that a group of mountaineers from Sydney had similar aspirations and would be delighted to have amateur radio operators join them. From then to now, the midnight oil of many has burned brightly.

The two groups joined forces, presented many individuals and organisations with plans and proposals, maintained very close liaison with each other, and published progress as it happened.

Very early on, amateur involvement was seen as an example where international assistance would be required. No Australian group has ever put together an expedition with an estimated cost of \$30,000 plus provisioning with suitable amateur radio equipment. On air discussions with the original American contact continued. He found that two of the DX Foundations in USA would assist financially.

Now that it had become clear that this was a viable proposition it was decided to ask VK5QX, who was visiting the USA, to make the news known at the Dayton Convention in Ohio. He was then supported by members of the IDFX and NCDXA who each pledged large sums of money to get the expedition on the road. (Maybe on the high seas would sound better).

Assistance was sought from all the divisions of the WIA and they have responded magnificently. Associateships of the Heard Island Expedition 1983 have been taken up by many Australian amateurs, and some from overseas. We are pleased to say that, at the time of writing these notes, the Australian amateur fraternity have contributed over \$8,000.

Many overseas Clubs have also responded, and due acknowledgement will be given in the pages of AR.

The Expeditions' needs for a suitable vessel led to an Australia wide search, resulting in the maxi yacht *Anaconda II* being chosen and chartered.

In this type of expedition, with so many facets involved, it was soon obvious that to safeguard all concerned many legal documents, charter agreements, expedition members' agreements, accounting procedures, custom clearances, official government approvals, amateur call signs, insurances, indemnities, etc., would have to be obtained.

All this took time, and we appeared to have plenty of that, or so we thought in Feb. '82. The months passed by with, at times, horrendous

speed. Each piece of the jigsaw puzzle gradually began to drop into place, the culmination of many sleepless nights, untiring paperwork, Telecom boosting ISD calls, deliberate on-air QRM and verbal maligning.

Heard Island was never considered, at any time, to be an easily accessible island to visit with an expedition of mountaineers and radio operators. Now, only a tidal wave or some other unforeseen disaster will stop the VK0HI activation on schedule.

The logistics have been handled by many competent people, some who are professionally competent to do so, others, without qualifications, have attacked the problems allotted to them with enthusiasm and vigour. Early in the planning stage we took Shackleton's quote of "Problems were made to be overcome". We did have to go around some, but generally most were surmounted.

Sir Edmund Hillary KBE has honoured the expedition with his patronage and the Australian Department of Science and Technology gave written approval on 20th September, 1982, for our expedition to land on Heard Island. With this approval the Department of Communications will release the call signs we have reserved for this rare DX spot.

The radio equipment is now arriving in Perth, with the transceivers being "soak tested", the beams being specially strengthened, and many other items being put through their paces. As an experiment, try placing your favourite 240V extension lead in the freezer overnight — see how it bends in the morning. (Something similar to this shows we really are working).

Arrival Heard Island late Jan. '83 will be the hopes and aspirations of not only those aboard *Anaconda II*, but the members of the VK6DX Chasers Club as well. Who the members of the VK6DXCC are is of no real concern at this time, except to say the amateur radio DX community should be happy with their efforts. It was never intended that any ego boosting aggrandisement should fall upon their shoulders from getting this expedition successfully underway.

Another prominent DX foundation has pledged assistance to the Expedition. The Japanese DX Family Foundation has pledged A\$5000 towards the activation of VK0HI from Heard Island.

From the amateurs of Australia, the divisions of the WIA, the International DX Foundation, the North California DX Association, the Canadian DX Association, along with many other world-wide clubs, associations and amateurs, has come wonderful and heart warming support and encouragement. It was

just such support continuing to trickle through each week that gave us the lift we so desperately needed to carry on through the barrage of criticism we received from uninformed quarters.

ASSOCIATE MEMBER UPDATE

VK2KNR, 22K, 2NKN, VK3AVY, 32IT, 3ADH, 3VO, 3BFP, 3DRH, 3POX, 3AGG, 3VTX, 3AUD, 3J0253, VK4VBD, VK8WT, 6FY, 6MM, 6NGG, 6YD, 6NID, 6AFT, 6KBW, L60136, VK9ZB, 9NYG, AAXYF, PAOGAM

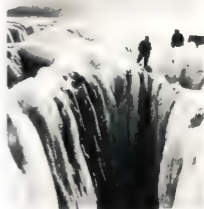
DONATIONS UPDATE

K50VC US\$5, W1EW US\$5, N9BA US\$5 Dr A. Regal, US\$30 Acadians DXC US\$100 Mexico DXC A\$8, VK3NNH \$10 VK7 Anon \$3, VK3YL \$25 W4FRU US\$20, OE1WWL US\$11 YB4AEP US\$10, VK4 Div'n \$100, Virginia Century Club US\$100, JA3ANG/JE3LV Yen 2000 JH6DI Yen 1000, VK8W US\$20, JY1 HRH King Hussam US\$500, W4KO US\$5, WOCUB US\$3, W1GME US\$5, JA2LA US\$3, VK5NPS \$10

LOAN FOR EQUIPMENT:

VK3 Div'n \$1000

For the tower that will carry the beams, the VK6 DXCC are indebted to Hills Industries of Perth for providing the design and manufacture of the metalwork.



Some typical terrain shown by the "slots" on the Baudesson Glacier. H.I.

Photo: ANAFIE 1964. G. Budd



NOVICE NOTES

Compiled by Ron Cook, VK3AFW

7 Dallas Avenue, Oakleigh, 3166

It is always nice to receive feedback from the readers of this column. Colin MacKinnon, VK2DYM, has written to the editor concerning Novice Notes in the September issue of AR. I will let Colin speak for himself by quoting from his letter.

I refer to the reprint of the N3GO article from Ham Radio re Co-ax cable traps.

1. N3GO (and your reprint) specified 1 1/4" diameter PVC tube — WRONG — he used 1 1/2" pipe which is in fact 1.66 inches diameter. A letter to HR Feb '82 pointed out this problem (I'd already found it to my chagrin).

2. The trap frequency depends on the shield coverage. I used a piece of Dick Smith coax which must have about 10% shield coverage and obtained some funny results. Again, HR, May '82 has a letter pointing this out.

By now I had lots of little coax coils on PVC tubes — all NBG.

Now — the way I solved the problem was.

a) To use good quality coax from the same length of cable is don't mix brands etc — I used new Jackson Commercial RG-58C/U.

b) I used PVC grey conduit "25mm schedule 91" which has an actual OD of 33 mm and an ID of 30 mm.

c) For 28.5 MHz I needed 4.05 turns which takes up 33 mm length of former allowing for 3 mm from each hole to the ends. See sketch.

d) For 21.2 MHz I needed 5.35 turns on 38 mm length of former (See Fig 1).

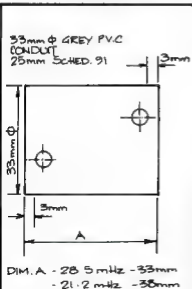
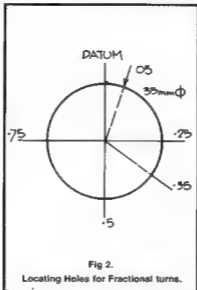
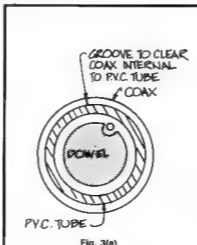


Fig 1 Trap Former

e) To obtain the position of eg. 35 turns I divided a circle into the necessary segments then put the tube on it.



I then used a scriber to mark the PVC tube at the two points, ie, at the Datum and the necessary part of the circle (see Fig 2). The rest was as per N3GO's article.



f) I gripped the traps (for actually two friends did) and found a very strong, pronounced dip at the design frequencies.

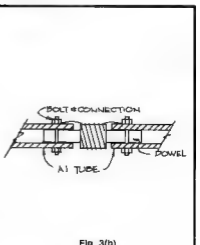
g) My traps are for a 3 band beam so are fitted onto varnished dowels of 30 mm OD sanded down slightly to fit and with a longitudinal groove to clean the internal nine connections.

h) I haven't made traps for other frequencies (not intentionally anyway!) and the relationship of frequency to number of turns of coax is not linear so it's not easy to extrapolate.

i) I dipped my coils in some encapsulating liquid from Werner Electronics in SA.

j) May '81 issue of QST has a similar coax trap article (p. 15) but the same precautions apply re diameter of former and avoiding cheap and nasty coax.

A couple of comments should be made at this juncture. Firstly, it is common practice throughout the world to specify pipes used for carrying fluids by their internal diameter. It is, after all, the important diameter as far as its prime application is concerned. Piping is usually described by inside diameter and tubing by outside diameter. An apparently innocuous change of wording changes the meaning considerably. N3GO used 1 1/4" PVC piping which is 1.66" in diameter on the outside. Our reprint used the same wording as appeared in the original. If we had done otherwise it would not have been a reprint. Now before someone else writes in, I would like to say that, as far as possible, ambiguities such as these are usually pointed out in a note at the end of the reprint. In this case it wasn't picked up and we apologise to anyone who may have been inconvenienced.



Details of Trap Mounting

Secondly, the US armed forces no longer use RG8 or RG58 series cables in fact there are many makes of cable carrying those numbers with various letters added to the end. None of these needs to meet the original specifications for the RG cables and most don't. Most are acceptable substitutes at HF if used as a feedline but I would want to see test figures before using any of these inexpensive cables at VHF or in an application such as a trap. A case of WHAT YOU PAY FOR BEING WHAT YOU GET.

Thirdly, in constructing any device such as a trap, it's most important to check the resonant frequency with a dip oscillator as even minor variations in physical layout can cause considerable differences in frequencies. Never take the dimensions too much for granted. Even a simple construction such as a quarter-wave vertical needs to be dipped or its VSWR characteristics tested to determine its resonant frequency. In very few cases will the constructor avoid pruning. So it is for traps.

Fourthly, grey PVC tubing may contain carbon and so will be more lousy than white PVC when used in an RF field. My personal experience has shown that the difference in losses is very small indeed but my tests have been few and quite empirical. Other amateurs are quite adamant that grey PVC is to be avoided for RF work. Perhaps all coloured PVC is suspect.

Fifthly, the coax traps described in the QST article are what might be called the conventional traps in that they do not use the "auto-transformer bucking circuit" devised by N3GQ. Finally, and not the least important, I would like to thank Gok for taking the time to write in and share his experiences and knowledge with us. His application of the traps to in-band beam construction is very interesting.

Perhaps I should close this month's column with another cautionary note. RTV or Silastic is often suggested for use as a sealant and weather-proofing treatment for antenna connections, especially to coax. It seems that in many if not all cases, acetic acid is released in the curing process, this will attack metals such as copper and make at least as big a mess of the connection as a couple of years in the weather would. It is possible to buy similar compounds which do not release acetic acid and these are strongly recommended as substitutes. Dow Corning 3145 sealant is one of several alternatives.

73 de VK3AFW

WARNING!!



Disposing of your old rig??

Please ensure it goes **ONLY** to someone licensed to use it on **YOUR** bands.

HOW, WHY AND WHAT OF HOME BREWING

This article poses some of the more interesting questions to the answers of why we bother to construct our own equipment at all.

For example, these three categories may be presented as the questions:

HOW do we build what we are building and what techniques are used in the course of construction? Can we persuade someone else to build it for us?

WHY is it being built, could we buy the same article cheaper or should we just watch TV instead?

WHAT shall we do with it when it is finished? (Other than slacken the jaws of friends and relatives when they first gaze upon the partially completed article.)

Notably the term 'finished' has no meaning in the art of home brewing whatsoever, just as surely as a capacitor never fully charges, an article of home construction shall never be fully complete.

A prime example of this is given that a man of relative skill could half build up to three projects a week and it could be safely assumed that if the same man diligently redoubled his efforts he could, in the same week, successfully half build up to six projects. This contributes greatly to a second source of guilt and embarrassment, where does one store all these devices when they've finished being half built? This problem becomes quite evident when it is observed that most of the resultant products fall within the parameters of too good to throw away but not good enough to keep. Though the width of these parameters will vary greatly with individuals, it is usually limited by the amount of available living space.

Reasons for embarking upon home construction are usually, though not always, fairly obscure. When posing this question to an individual, the person comes under pressure and will hastily rationalise reasons of finance, education, unavailability and leisure, though often, because it's more fun than writing magazine articles. Regrettably only a minute percentage of all this active creation is anything original. Mostly it is just a duplicate or modification of a previously standardised item. This is not to say that home construction is futile, but that of two thirds of the otherwise total construction time was dedicated to hard thinking about what the remaining third is supposed to be doing, then the resultant product will be half the size and twice as effective as the whole of the original design idea, or pretty close to it.

'How' or 'method' of building is the most important aspect of any potential project. To get anywhere beyond the brainwave stage people must strive to make the most efficient use of their efforts.

The correct choice of size, shape, colour and available facilities (the number of knobs on the front) will determine final performance of the project and the degree of awe with which others will treat it.

It is equally common to exceed the requirements of a task, some people heroically attack such tasks with total patience and precision with results that appeal to the eyes of critics and other lowly amateurs. Never use glue and screws where sticky tape and elastic bands will suffice or in the words of a recently stolen quotation "Measure it with a micrometer, mark it with chalk and cut it with an axe".

From Bully's Bull in Galaxy
(Opposite Gale Radio Club Bulletin)
July/Aug 82 AB



"WHERE DO YOU GET IT"

Most amateurs read American amateur radio magazines (such as QST, Ham Radio, 73, CQ etc.) and look through each new edition of the ARRL Handbook as it becomes available. Occasionally, a project is described which appeals, and you would like to build it.

Then comes the problems over parts procurement. If a printed circuit board is used then you probably don't have any facilities for making your own from the artwork reproduced in the article. Maybe the design calls for special components which (we all know) are just not available in this country. So, you give up in disgust and continue to buy fully made up equipment and dream.

A company in the USA which stocks the sort of items we all find hard to come by is — Radiokit, Box 411 Greenville New Hampshire USA 03048.

If you have ISD, their number is (603) 878 1033.

This company seems to specialise in selling items the radio amateur specifically wants and which are hard to find. They have a catalogue (including prices) which they will mail to you on request.

They have a very large range of Milen and B&W components — tuning capacitors for antenna couplers, transmitters, receivers, linear amplifiers, etc., angle drives, insulated couplings, bushes, etc. switches, amplifier networks, rotary inductors. They stock a large range of RF chokes and prewound slug-tuned inductors as used in US designs.

They also have PCBs and complete kits for some projects out of Ham Radio and QST. They have a few fixed capacitors, resistors and semi-conductors but these items are available from many sources.

I bought two capacitors for an antenna coupler, and it was a week before posting off the order to receipt of goods. They were very well packed and were unopened by HM Customs. The cheapest way of writing overseas is by Aerogram, and the simplest way of paying for the goods is by a bank cheque, in US dollars, obtained from your bank.

For Gerry Ch28HA
writing in QST, Ham Radio &
Districts ABC Bulletin June 82
AB

BBC RADIO CLUB

On 19th December 1982 the BBC is celebrating the 50th Anniversary of the official start of the Empire Service (now renamed the External Service). To commemorate this, the BBC Radio Group has obtained special call-signs and will be using them during the period 1st-31st December.

The stations will be GB2BBC, GB3BBC and GB8BBC in Central London, GB3BC in West London and GB4BBC at Caversham near Reading. In addition several other BBC Club Stations around Britain will participate. The bands in use will be 40, 40, 20, 15 and 10 metres. Maximum activity will be centred around the 19th December. SS8 will be the main operating mode on HF.

A special QSL Card will be issued for contacts made with these stations.

INTERESTED IN A SPECIAL SERVICES NET?

Ex allied commandos and special operations people of all services should QSL BILL, VK3DMP, BOX 182 GISBORNE 3437.

AN OPEN LETTER TO THE INTRUDER-PLAGUED RADIO AMATEURS OF AUSTRALIA

33 Somerville Rd.
Hornsby Heights, NSW. 2077
December, 1982

Dear fellow-amateur

The time has come to launch an urgent appeal for help from all concerned amateurs to assist in riding the amateur bands of intruder stations. World-wide information reveals that INTRUDERS ARE ON THE INCREASE. If we project this situation to its possible conclusion we may eventually find ourselves in a situation where our on-air working conditions might appear to that of the intruder primary service being a secondary service to think about. But we must think about it. AND NOW The increasing number of reports you hear on the amateur bands are almost too awful to report any intruder stations you hear on the amateur bands. It is Watch asks you to report any intruder stations you hear on the amateur bands. NO REPORTS. NO ACTION.

You can help by reporting intruders from as many Amateurs as possible to I.R.W. You can help by reporting intruders from as many Amateurs as possible to I.R.W. You can help by reporting intruders from as many Amateurs as possible to I.R.W.

[illegible]

73. Bill Martin.
VK2EBM.
Federal Intruder Watch Co.-Orlando



POUNDING BRASS

Marshall Emm VK5FN (ex-VK2DPX)

Box 389 GPO Adelaide 5001

CW CONTEST OPERATION

There are so many different aspects of CW contest operation that it's difficult to decide where to begin. There are CW Only contests, contests with separate sections for CW operation, and mixed mode ("open") contests. One can enter as a serious contestant, use CW to supplement a phone score, or participate on a casual basis with no intention of submitting a log. There are some fringe benefits to participation in a CW contest which make it attractive to the "non-contestant" among us — you can experience a wide variety of sending styles and speeds in a very short time, and significantly improve your "ear" and copying ability while you're at it.

As with any contest, the basic point of it all is to make as many contacts as possible as fast as possible. Therefore contest exchanges are cut down to the bare bones. A typical contest exchange requires call sign, signal report (RST), and a contest number (serial number, zone, or age, etc.) and would look something like this:

CQ TEST DE VK2DPX K
VK2DPX NR 5 N N TT8 BK
R T J US NR 5 N N 123 BK
R ES GL E E CQ TEST

There isn't much to it, is there? And when you consider that most of these exchanges take place at 20-30 WPM or faster the contact rate can be very high indeed.

Looking at the sample exchange piece by piece, the first element is the CQ contest call. Quite often this is specified in the contest rules, but if not, common sense and efficiency should

prevail. The Remembrance Day Contest call is CQ RD, the John Moyle Field Day call is CQ FD or CQ JM, when in doubt CQ TEST is just fine. The call should consist of the CQ, your call sign, and K, sent once only, allowing three or four seconds for a response before repeating.

The answer to a call should be simply "DE your call sign." The assumption is that if you answer on the same frequency, you must be answering the CQ.

The station calling CQ should send the responding station's call sign once (because there may be several stations answering) and will then give the signal report and contest number. Repeats are usually not given unless requested. Signal reports are usually given as 5/9/5 regardless of the facts of the matter, and I shall refrain from making any further comment on that subject! Numbers are coded if practical (N=9, T=0), so an exchange of 5/9/9 008 would be sent as 5 N N TT8. BK (or break) is then sent to invite the other station to transmit. Often it is sent as B (space) K, and sometimes K is used by itself.

As is the case on phone, it is up to the station which calls CQ to send any pleasantries (such as GL E E) and he may or may not listen for an acknowledgment (E E) before calling CQ again.

Unlike most CW activities, successful participation in a contest does not depend to any great extent on your copying speed for "normal" CW. You can generally work a station calling CQ at twice to three times your normal copying speed. Firstly, the format is so standardised that all you have to pick out is a call sign and a number. You can listen to two or

three calls before answering in order to be sure of the call sign, you can listen to the next contact the guy makes in order to verify the number. Secondly, asking for a repeat is as simple as sending a question mark. For example, if you missed the number, you send NR ? K. Finally, although you may start out listening to CQ calls three or four times, it doesn't take long before you can pick them first time. More will be said on this subject in a future column, but it is generally recognized that any 5 WPM novice can recognize a single character at speeds up to 50 WPM, a string of three or four characters at 25 WPM is certainly possible.

As far as sending speed is concerned, you should send as fast as you can and still be readable at the other end. But as we've said before, it is only reasonable to send the minimum to get the job done. If the other station wants a contact (why else would he be in the contest?) he'll be patient.

That pretty well covers the aspects of contest operation which are unique to CW, questions of whether to call CQ or "search and pounce", when to change frequency or band, when to have super or try to pacify the XYL — all these are matters for judgement based on experience and CW is no different from phone in that regard.

By all means dust off that key the next time a contest is on and hand out a few numbers — you will probably be hooked. Season's Greetings to all!

73 FER NW

IS YOUR CW DOWN THE DRAIN?

It is a great shame that so many of you let your CW ability deteriorate. Many found the task of passing that 10WPM examination an extremely difficult one, and having achieved a pass have vowed never to touch a key or listen to Morse again.

How many can remember back a few years when conditions were very poor? I can remember saying that they could not get any worse, but they did!

The same thing is going to happen all over again, as Cycle 21 is going down hill fast. Sure, we will see a little improvement in high frequency propagation during the summer months, but it will be even worse next winter and so it will go on for several years. The pattern will repeat each year and each seasonal rise and fall will see a steady decline.

There will be times when DX will be coming through on one band or another. There will be times when you will be able to use SSB for DX contacts, but I can guarantee that CW will give you much better communications for longer.

Now is the time for you to brush up your Morse proficiency. All it takes is practice, just a little bit every day or as often as you can. There is plenty of CW practice to be had, there is slow Morse every evening on 80 metres and surprise, surprise, there is actually CW being used at the low end of most of our bands. Have a contact on CW, there is nothing like the real thing. It might put a smile on your face, a smug smile, especially when the phone boys are complaining about rotten conditions.

VK4QY Editorial in QTC
OCT 82



NATIONAL EMC ADVISORY SERVICE

Tony Tregale VK3QQ
FEDERAL EMC CO-ORDINATOR

38 Watlie Drive, Watsonia 3087

In these days of modern amateur equipment and colour television the incidence of TVI is, in most cases, the fault of the television system, not your amateur equipment. In by far the majority of cases, the reason for interference is found to be inadequacies of TV receiver/TV system design and construction.

Audio devices are designed to amplify audio signals such as music or speech and are not intentionally designed or intended to function as receivers of radio signals. The problem is not caused by the improper operation or by the technical deficiencies of the radio transmitter. The strong electromagnetic energy accepted by the audio circuitry due to inadequacies in design, overload, the audio filter is "rectified" and amplified and appears at the speaker as an undesired sound. The only "cure" is by treatment of the audio device.

This brings us to another problem area for the amateur radio operator — interference to his reception by incidental radiation (man made noise). Overhead power lines are without doubt one of the biggest contributors in this area.

"It is an unfortunate fact of life that in the majority of cases right or wrong, the minority are persecuted by the majority. The Amateur Radio Movement is no exception! World-wide, radio amateurs have been fighting a never-ending battle against unjust persecutors by authorities over 'Radio Frequency Interference' for many years.

The true cause of most interference problems has been (and still is in many cases) the susceptibility of domestic entertainment equipment and consumer products to unwanted interference.

Interference is rather like our home insurance — we don't think about it until we are in trouble! In order to try and ensure that data and advice is available when required the service has a team of technical advisers and a large amount of information on file. Our information files are being constantly updated. However, due to the complexity of this very wide subject we must rely on the co-operation of all Australian amateurs for a large percentage of this information. If you have any information, ideas, suggestions, comments, etc. in connection with EMC please don't sit on it — pass it along.

If you have an EMC problem don't wait until it gets to major proportions — send the details along now. Swift and equal battles can be very expensive. One of the main aims of the service is to try and ensure that the problem does not get to that.

EMC advice is available to all Australian amateurs through the National EMC Advisory Service. The main aim of the service is to try and ensure that all Australian amateurs have access to the best national and international EMC advice and technical information.

On behalf of the EMC Advisory Team — Seasons Greetings and Best Wishes for 1983 — Let us end this year with a couple of humorous stories.

From Western Australia: Rex Hanien VK6KO says

TVI is nothing new. The average suburban amateur operator knows only too well the effect of "firing up the linear" whilst a popular Sunday night movie is showing on the box. Just about every amateur at one time or another has had to deal with various TVI pro-

"THAT WAS THE YEAR — THAT WAS"

Well here we are with just a few weeks to go to the festive season, and the end of another year of the "interference" battle.

We have had the "Directory of Assistance" — "Cable TV" — "the run-up to the Radiocommunications Bill" — to name but a few of life's interesting activities.

Before we close for this year, perhaps we should remind ourselves of a few of the basic details and principles of interference problems.

blems, so it is not surprising that TVI in general is taken a little for granted. The following anecdote however is a bit out of the ordinary, in fact it could possibly qualify for some sort of "World TV Record".

It occurred some years ago (my ego has now recovered sufficiently to be able to write about it). I held a novice licence then and was in the process of building a 10 metre-80 metre transverter. The construction of the boards and chassis were complete and the unit was ready for line up and testing. I decided that since I worked for a TV Studio (fortunately I still do) I would take the opportunity to use some of their sophisticated test equipment. So, after obtaining appropriate permission, I went to work.

In a short while the receiver was operating to my satisfaction and attention was turned to the transmit section. Dummy load connected and drive applied, it appeared to be operating normally, so, after a final check I plugged it into an antenna and proceeded to tune up "on air". Unfortunately signal also appeared on the Studio's transmission output. PANIC! It seems that 3.5 MHz is nearly within the normal 5 MHz TV vision band width (composite video in studio systems is 0.5 MHz) and the close proximity of 3.5 MHz signal was too much even for the normally well shielded video apparatus.

Although the "TVI" did not disrupt the picture too severely it was nevertheless noticed by several technicians. (How embarrassing). About 30 seconds had elapsed before I realised what was happening and turned off the transmitter.

The normal viewing audiences of the station is almost 200,000 people and with my luck they were probably all watching.

TVI on this grand scale is nothing to be proud of, but the incident is worthy of note. I will certainly not forget it for quite a while.

Now, an Irish tale for South Australia. Rob McKibbin VK5ARO says

My first brush with death came in January 1977 when I lofted an 11 metre ground plane on my brand new roof in my brand new "quiet" residential suburb north east of Adelaide. When my XYL and I first found this block of land, the lack of trees (reflections), overhead power cables (QRN), and most importantly, amateur antennas (QRM) hit me like the Cannonball Express. Even in my days of Citizens Band I was planning an assault on the Amateur fraternity. However, in the shadows lurked weekend lawyers, conservationists and plenty of drongoes with nothing else to do. I unleashed 4 watts of amplitude modulation which sent shock waves throughout my Peyton Place with the force of an atomic explosion.

Having obtained Novice status shortly thereafter an ex DCA free standing tower was immediately pressed into service. Operations from the "Save our neighbourhood" group hit me with the kick of a 4 kilowatt amplifier. Naturally the local Council came knocking on my door. However, they were more than embarrassed at being unable to comprehend the computation of the actual height of my structure with the use of a theodolite and trigonometric functions — 10 metres on the dot; that got rid of them. In my Council area, planning consent or building approval was required for antenna supporting structures under 10 metres. This has recently been amended/extended to 15 metres however building approval is required for 10-15 metres (Corporation of the City of Tea Tree Gully).

Today my equipment includes a Kenwood TS1805 driving a TL92Z linear and these light up a TH8DX antenna at 10 metres.

Prior to erecting the tower I consulted with all my neighbours who indicated strong resistance to high structures. I had the hardware to give me 80 feet and at this height the ensuing TVI problems may not have been as severe as experienced by various people (including myself) in the passing months. My number one solution was to demonstrate the effect of high pass filters by hopefully achieving a QRM-less environment in my own home. Having a video recorder in line with my outdoor antenna (with shielded 75 ohm coax) did not make a solution easy to come by. Without the video I achieved dramatic success with the use of a \$200 filter and a 1:4 transformer. Slight indications of colour fading were readily apparent whilst transmitting on 20 metres and believe it or not the change-over to a squiggly indoor antenna gives my XYL crystal clear viewing at all times — including when I am on 40 and 80 metres. Apart from enclosing my video machine completely in a "shield" box I have as yet not been able to solve the VCR problem (the distributors in Adelaide washed their hands of the problem).

So, with all the confidence in the F-layer I decided to talk turkey with the dissidents. Talk turkey indeed, I couldn't get a feather in sideways despite my remarkable claims. My list of crimes were read to me: soaking pests with cancerous radiation, literally exploding a colour television at 120 feet, and driving 19 people to the rubber room. Could these be

the same people I handled emergency traffic for when Telecom pulled the big plug? Are these the people with the noisy dogs, drills, motor bikes, stereos, etc? Confusion ran rampant in my teeny Northern Irish brain. I decided it was time for a "test, hello test, halloo" /dixperted. Three homes were immediately swept aside due to mass interference (claimed) whilst my big plug was removed.

Three others greeted me with big cheesy grins as I clearly demonstrated (on their receivers) the awesome power of a \$2 note and in some cases a free antenna. That left one — and ohhh what a pain. Naturally DOC has been a busy little beaver up here yet my station gives them little reason to suspect a fault with me. Low-pass filters (after exciter and after linear) coupled with an extensive earth mat (12 Cu rods interlaced) under my

garden leave little else for me to do (bar possible faults in my black box).

Consider this typical conversation with my next door neighbour. (4th July 1982)

On leaving my shack I hear a voice in the darkness

SHE SAID "You've got a big mouth Irish

"

I SAID "I never thought you would notice

— what's wrong?"

SHE SAID "Get .."

I SAID "Would you like me to transmit for

another hour?"

SHE SAID "You're dead"

And so it goes on. An eternal circle of

ridicule and foolishness. The police aren't

too interested unless my body is crushed

underfoot, DOC can't do too much until an

acceptable outdoor antenna and shielded

coax system is installed with the TV

I now come to the end of my story. I have plans to erect a much higher mast in advent of the amended Council policy this time, and hopefully a reduction in TVI will result

In summary, I have found ignorance to be my worst enemy — the inability of people to realise the use/availability of filters and more importantly that we, as licensed operators, have as much right (or privileges) to participate in our hobby as would the next door neighbour turn up his stereo or run a lawn mower at 9 am on Sunday morning

Also after watching some war film footage on TV my ability to comprehend this big problem diminishes

So, never despair people. Look at the trials and tribulations I have had and I'm only on 2 hours a week

ON THE AIR — 4K1A

by Master of Sport of the USSR S. Kus'min,

UQ80C, ex-4K10C

THIS ARTICLE IN RUSSIAN ORIGINALLY APPEARED IN "RADIO"
No. 4 — 1982. SUMMARY TRANSLATION COURTESY OF DEX
ANDERSON W4KM.

D. H. Rankin 9V1RH/VK3QV

Twenty-six years ago, on 13 February 1956, the first Soviet station — M rnyy — was opened in the Antarctic.

Three radio stations represented the anniversary 25th Soviet Antarctic Expedition on the amateur airwaves: Oleg Kazak, UA1CMA, operated from the Mirnyy Observatory with the call-sign 4K1B and was often heard in the CW portion of the 20-metre band. From the cold point on our planet, the intra-continental station Vostok, the call-sign 4K1C rang out, the operator was Ram Vostretsov, who has participated in more than one Antarctic expedition. He showed up regularly in the SSB portion of the same band. I was assigned to winter over at Volodzhnaya. Besides me, Gennadiy Podgorny, UB5JHO from Khar'kov, and Yuriy Afanas'yev, from Leningrad, operated at 4K1A

All of us were in Antarctica for the first time so our interest in and attempts to operate from the other Hemisphere are understandable. But there was no amateur equipment as such at Volodzhnaya and none of us had brought his own along. We had to start practically from scratch. First we directed our efforts to antennas since it was already March and the Antarctic winter was approaching, with its long polar night, storms, and hurricane winds. In a short time we equipped an operating position, erected a transmitting antenna, and restored to service an old worn-out transmitter. And some 10 miles later we so assembled an SSB exciter on 14MHz. In general, we were able to operate with telegraphy on all shortwave bands except 160 metres.

During our wintering-over, about 6,000 QSO's were made at 4K1A. Great attention was paid to the 80-metre band. Conditions were good. Receiving rhombic antennas with amplifiers and clean airwaves enabled us to hear European stations almost daily. The favourable location of our station also had an effect. This is explained by the fact that Molodzhnaya is situated on a high cliff coast, and the height of the antennas above the

ocean level reached 100 metres. On 3.5 MHz alone, about 1,000 QSO's were carried out. A FEW WORDS ABOUT PROPAGATION PECULIARITIES

Strange as it may seem, stations from South America and Oceania came through weakly at Molodzhnaya. In contrast Africa "boomed in" around the clock. We also had solid reception of Japan, Europe, and the USA. It turned out that many African stations operate on 80 metres, but in Europe they are rarely heard on account of serious interference.

The interest throughout the world in our station was great. Contacts on 3.5 and 28 MHz were especially popular. Unfortunately, the press of our basic work did not permit us to devote a great amount of time to amateur contacts. Nonetheless, they attempted to devote every free minute to them.

The beginning of the Antarctic Spring was marked by a happy event for me. In September I received long-awaited permission to operate with the personal call-sign 4K10C. In five months I carried out almost 2,000 QSO's with it, on five bands.

It is necessary to say that, operating on the air, we did not give preference to rare stations. We got great satisfaction from meeting Soviet shortwaveers on the air. But among the most interesting we would mention QSO's with our polar colleagues from the northern Hemisphere: UA1PAL, the polar station on Franz Josef Land, UA0DY on the Lyakhov / Lyakhovsk? / Islands, UPOL-22. We also recall our intracontinental contacts. Regular traffic was passed on the amateur bands between the three Soviet Antarctic stations and also the foreign stations Mawson (VK0SJ) and Sanaz (ZS1AMT).

In conclusion, we would like to take this occasion to thank again all of the stations we regularly stayed in contact with — UA1MU, UQ2PM, UQ2GDC, UW6NF, and UW9WR — for their steady assistance and support, thanks to which we did not feel alone on the icy sixth continent.

PROJECT MIREK

At the July meeting of the Eastern and Mountain District Radio Club (Melb.), the Club Committee decided to join with Frank Vander Drift VK3NGZ, in his sponsorship of Mirek Rozbicki as a migrant to Australia.

Mirek is an amateur and holds the call-sign SP5X1 but is presently operating portable from Austria to where he fled from his native country. He had to leave Po and without his possessions and has been living in a refugee hostel in Vienna for over a year. Mirek is 24 years old, single, and has completed part of an engineering degree.

The project was presented to the August General Meeting of the Club, and those present signified their agreement to the action.

It was agreed that with a project such as this all members, and others, should be given the opportunity to help a fellow amateur start a new life in our country. The Club's involvement is to guarantee Mirek's air fare from Vienna to Melbourne, and already many members have made contributions.

Mirek has been accepted by the Australian Immigration Authorities and has now received his visa. The club will pay his fare at Qantas in Melbourne, and the ticket will be transferred to him.

Frank VK3NGZ has recently had letters from Mirek who is aware of what is happening and expresses deep gratitude to his benefactors. At the time of writing this, he had temporarily left the hostel at Manazel, near Vienna, and was working in Graz in the south of Austria. His part-time job is at the local McDonald's food outlet!

LATE NEWS:

The above information was taken from the president's message in the Radio Bulletin, Sept. 1982. John Hutchinson VK3JH now informs AR that Mirek has been booked to fly out of Amsterdam to arrive in Melbourne on Saturday 20th November 1982.

The December meeting of the EMDRC is to be a "WELCOME MIREK" evening, and by the time you read this Mirek should be well and truly established in his new country.



VHF UHF - an expanding world

Eric Jamieson VK5LP
1 Quinns Road, Forrester, 5233

AMATEUR BAND BEACONS

| Freq. | Call Sign | Location |
|---------|-----------|-------------------|
| 30.005 | H44HHR | Honolulu |
| 50.008 | JAZ2GQ | Mie |
| 50.098 | KH6EQI | Pearl Harbour |
| 51.022 | ZI 1UHF | Auckland |
| 52.017 | P29SIX | New Guinea |
| 52.100 | VK0AP | Macquarie Island* |
| 52.150 | VK5KK | Arthurs |
| 52.200 | VK8V | Darwin |
| 52.250 | ZI2VHP | Palmerston North |
| 52.300 | VK6RTV | Perth |
| 52.320 | VK6RTT | Carnarvon |
| 52.340 | VK6RTT | Geelong |
| 52.350 | VK6RTT | Kalgoorlie |
| 52.370 | VK6RTT | Melbourne |
| 52.400 | VK6RTT | Launceston |
| 52.420 | VK2WT | Sydney |
| 52.445 | VK2RGH | Gunnedah |
| 52.445 | VK6RTV | Hamilton |
| 52.440 | VK6RTT | Townsville |
| 52.500 | VK2BN1 | Newcastle * |
| 52.510 | ZI2MHF | Mt Clivie |
| 53.000 | VK5VF | Mt Laffy |
| 144.400 | VK6RTT | Mt. Mosehill |
| 144.420 | VK2WT | Sydney |
| 144.430 | VK6RTT | No advice of site |
| 144.465 | VK6RTW | Albany * |
| 144.475 | VK6RTA | Canberra |
| 144.480 | VK6RTT | Darwin |
| 144.530 | VK6RTT | Mt. Gambier |
| 144.600 | VK6RTT | Carnarvon |
| 144.600 | VK5VF | Mt Laffy |
| 144.900 | VK6RTT | Ulverston |
| 145.000 | VK6RTV | Perth |
| 147.400 | VK2RCW | Sydney |
| 432.410 | VK6RTT | Carnarvon |
| 432.440 | VK4RBB | Brisbane |
| 432.450 | VK6RTB | Mt Buninyung |

It seems 6 metre operation from Macquarie Island will now be via Peter VK0AP and on 52.100 (refer November AR) It is great to find the area being activated again after such a long break.

* Indicates new beacon, advice received via VK2ZVV. Built as a project by the Newcastle Technical College, running 4 watts to a ground-plane antenna, keying FSK upwards. At the time of advice the beacon was at the testing stage so it seems reasonable to expect it to be operating in time for the summer E season.

5 Indicates advice has been received via Bob VK5ZRO that Aub VK6XY had indicated the Albany beacon was once again operational on 2 metres on a frequency of 144.463 instead of the former 144.500 MHz. Indications are that the beacon is operating from the new projected site of the old whaling station. The beacon has already been heard weakly in Adelaide. The 52 and 432 MHz beacons are planned to be operating before long.

SIX METRES

Certainly has been quiet along the southern areas, and quite surprisingly so quiet throughout the spring equinox. There have been the occasional openings to Japan, the most recent one being over the weekend of 24/10 when Bob VK5ZRO reported hearing JA's at 0200 UTC and working a JA at 0637 UTC. The band opened again at 0700 UTC to JA2, 4, 7 and 8. Signals were also heard from VK2 and VK4 at

the same time indicating the JA's were assisted by Es from those areas.

6 metres also seems very quiet across the Tasman in New Zealand at the moment reports filtering in show little to talk about.

SIX METRES OVERSEAS

Bill W3XO from "The World Above 50 MHz" in QST October 1982 also has not been reporting so many long distance happenings other than the summer-time (US) Es contacts.

It is interesting to read of the exploits of those concerned in the Saint Paul Island DXpedition from 8 to 13 July. The team included VE1ASJ, VE1CERIAKAL, VE1AI, VE1FH, W1XX, W1GNC and K1WJ. They worked four hundred and fifty stations on 6 metres in all US call areas except 6 and 7. During the peak of activity on the Sunday evening VE1ASJ, who did most of the 6 metre operating, worked one hundred and sixty contacts in a single hour! Equipment consisted of a TR-6 and a Cushcraft 617-6B.

This same DXpedition took along 2 metre equipment with the idea of trying some moonbounce. They had a 1 kW ARCS amplifier using a pair of 8930's, feeding four Jr Boomers through six feet of 1/4 inch hardline. An ARR 0.5dB SAs FET pre-amp, a Microwave Module transverter and a TS 520S completed the line-up. No EME contacts were made due in part, to difficulty in locating the moon because of larger than expected magnetic compass errors. However, the Es of 11/12 July made up for that, with a wild six hour binge resulting in some one hundred and ten QSO's in US call areas 2, 3, 4, 8, 9, and 0, plus VE3. Longest distance 2065 miles. The following morning a tropo opening down the coast resulted in S9+ signals over considerable distances. They were unlucky however, in that, having to leave on the 13th July, they missed by only a few hours the huge aurora opening that began that evening, and was to prove to be the biggest aurora to occur this decade! SUCH IS LIFE!

THE COLD SOUTH!

As mentioned under the beacon list, and following on from the article last month, it is good to see Macquarie Island being activated again, and with equipment capable of putting out a strong signal if required. Es contacts have been made in the past with such areas, and there seems no reason why it cannot be done again with a dedicated operator at that end. We thank those VK3 amateurs who so quickly got into the act to provide the equipment.

Heard Island will also be coming on eventually with the call sign of VK0HI from a TS860 and 100 watt Lunar amplifier, the latter kindly loaned by G1 VK3AUI. More on this one later.

A letter arrived on my desk in a roundabout manner, via VK3AUI, from Mike VK9ZYX who is operating from Cocos (Keeling) Islands, address PO Box 8, Postcode 6799. Mike reports he is in the process of making an amplifier to fit inside the 2M100W to provide the 12 watts drive needed, so looks like some 2 metre activity will be on the way from there before long. Mike is also modifying an HF linear to run an 8875 tube for 400 watts on 6 metres, so this may be another possible area for those requiring it.

SIX METRES FROM JAPAN

Graham, VK6RO, has written enclosing information of activity in Japan at the moment, including information on that very successful Japanese operator, Nori, JR6IGG, who has worked fifty seven countries on 6 metres, with fifty five confirmed! What a great effort and we offer our congratulations. Nori lives near Fukuoka in Tosu City, and uses an eight element yagi, and an IC551 or TS660. Nori reports that during the Es just passed he heard VSSSIX in Hong Kong nearly every day, but no activity!

As it might be of interest to VK stations to see what they have missed through living in the Southern Hemisphere here is the list of stations worked by Nori, JR6IGG, on 50 MHz plus those calls with VK prefixes on 52 MHz. The first station listed date-wise is on 13/8/79 and being HS1WR in Thailand, and the last is on 22/11/81 with HC2FG in Ecuador, which is a span of a little more than two years. The list is as presented by Nori, and not in order of dates. 302CM Fij, ZB2BP G bratir EL2PY - denia, KC6IN Eastern Caroline, P29ZFS Papua New Guinea, KC6S2 Western Caroline, KH6J Hawaii, WA4TNYW K1 Alaska, KX6OC Marshall Island, YB1CS Indonesia, JD1ALY Cocoswara Island, FBKAX New Caledonia, A35DX Tonga, ZD8TC Ascension Island, WH0YKPA Puerto Rico, VU2JPN Ind, C21AA Nauru, ZK2DX Niue, A8BA American Samoa, PY5BAZ Brazil, 5W1AU Western Samoa, LU3EX Argentina, T2AAE Tuva, V T3AZ West Kiribati, 524CS Kenya, T3ALAA Republic Kiribati, VS6EZ Hong Kong, ZC2CD New Zealand, VSSSS Brunei, H44PT Solomon Islands, 9MB6E East Malaysia, KG6JDX Guam, 4S7EA Sri Lanka, ZS2SS South Africa, KH0AB Saipan, YJ8PD New Hebrides, VK9ZD Willis Island, JD1YAA Minamitorishima Island, VK9NS Norfolk Island, HS1WR Thailand, 807BK Maldives, HM2JD Korea, VK9XW Christmas Island, VK9ZYX Cocos (Keeling) Islands, HC2FG Ecuador, WB7AJ USA, CX8BE Uruguay, CE3DZ Chile, VE7LB Canada, VK2BA Australia, 5B4AZ Cyprus, CR9JA Macau, HC8VHF Galapagos, DU1AOS Philippines, JG2QMZ Japan, 9N1BMK Nepal and FW0BK Wallis & Futuna Island the last two not yet having been confirmed.

If your mouth is not already watering it soon will be when you give thought to how many of those countries some of you would have heard on 50 MHz and were not able to work because of our 2 MHz difference. One very noticeable missing country from Nori's list is Mexico, one which has figured fairly prominently in Australia even as far as VK5. Also there are some more countries in the Caribbean area and the Atlantic so I would think Nori will not be content until he has gathered all those remaining. However, a most creditable performance.

The Japanese CQ amateur radio magazine (courtesy JR6IGG and VK6RO), for July 1982 has a graph showing the solar flux for 1981/1982 as reaching a high of 305 on 12/12 with openings to W6 and W7, it then went down to 138 on 20/12, a rise to just under 200 on 1/1, 147 on 15/1 then to 301 on 1/2 with good contacts to VK and ZL, 180 on 15/2 and 250 on 3/3 and working ZD8TC, ZB2VHF etc. Various

small rises and falls are recorded with a peak of 235 on 15/3, 185 on 12/4, 145 on 20/4, 165 on 25/4, down to 127 on 13/5 then a small climb again. Throughout April however, such exact places as ZB2, SZ4, EL2, VK9XT, VP2, 9V4, PJ9, 3D2, A35, ZL were worked by some stations.

The same issue of the magazine carries an outline in Japanese of the exploits of Steve VK4ZSH and his DXpedition (reported in AR recently) through the Northern Territory and north Queensland to work Japan on 2 metres.

FROM CARNARVON.

With the return of Andy Hemus VK6OX to Carnarvon that area is again on the map I had the pleasure of meeting Andy during my around Australia trip recently, and hopefully the little push I gave him to keep trying for various contacts and bands will be clear fruit.

As a forward sample, read this 22/7 JA to S9 on 50 MHz at 0800 UTC. 24/7 JA's on 52 MHz at 0830 UTC. JAZVPH reports VK6RTT beacon 599 at 0850 UTC. 27/7 JA1, 2, 7 and 8 from 0902 UTC. 8/8 50 MHz full of JA's at 0730 UTC. 15/8 JA1, 8 and 0 0752 UTC. 18/8 most JA's areas from 0847 UTC. 19/8 JA2, 4, 5, 6 0857 UTC. 24/8 good JA opening. JAZGY 599 0654 UTC. Band closed 0709 UTC. 25/8 indications of summer tropo occurring. Geraldton TV, 500 km south full colour on Ch. 11 at 1150 UTC. 23/9 all JA areas worked 0839 to 0937 UTC. 25/9 short JA opening 0422 to 0455 UTC. 26/9 JA1, 2, 3, 6 and 8 from 0920 UTC. 17/10 JA at 0919 UTC.

17/10 Trough down coast. VK6RTT on 145 MHz west at 1100 UTC, also audible 0620 UTC. At 1120 UTC received phone call from Tony VK6BV that he was hearing VK6RTT on 144 600. At 1122 UTC had contact with VK6BV on 144 100 with signals to S7, concluded 1154 UTC with signals fading. At 1155 UTC Wally VK6ZWO at Mullewa called on 144.1, signals SX6 both ways.

At 1240 UTC another phone call from VK6BV — 'I can hear VK6RTT on 432 410 MHz!'. Contact resumed on 144 100, then test transmission heard from VK6BV at 1240 UTC, signals 469 due to power line noise. At 1244 UTC commenced 2 way SSB contact on 432 400 with signals peaking S8 both ways. QSO concluded 1315 UTC, after attempting to reconnect on 144 100 but with no results! No other signals heard on 2 metres. Both used MMT 432/28 transverters barefoot with 10 watts. Tony's antenna sixteen element yagi, Andy's fourteen element ATN at 18m. Good work chaps, didn't I tell you it could be done! The calculated distance for the 70 cm contact is 808.59 km and I over land GOOD WORK.

VK2AM EME STATION

Lyle VK2ALU reports in "The Propagator" that construction on the 1296 MHz transmitter is continuing, with the power supply almost completed and the aluminum pipes have been obtained for the dish feed tripod. 1000 metres (l) of 440 volt cable is on hand for the many runs of 240 volt power and control cable between the operating building and the dish. Reading the articles one gets the impression there is still a lot to be done, but at least it is on the way. GOOD LUCK, PLEASE ADVISE WHEN READY.

JOTTINGS FROM ANYWHERE

The South East Radio Group in Mt Gambier advise they have a new 2 metre repeater operating from "The Bluff", and the 2 metre beacon is also operating from Glencoe. Applications have been lodged with the City Council to install antennae at the clubrooms for HF, 2 metres and 70 cm.

Graham VK6RO makes a plea that if we are lucky enough to get 50 000 to 50 150 MHz that

we use 50.050 as a call frequency, so by changing the band switch only on most equipment it would be possible to quickly lock at 50 050 and 52 050, and listen for Melbourne and Sydney stations not able to use 50 MHz at any particular time. Any thoughts from the multitude?

Bob VK5ZRO heard on 28 885 that contacts had been made recently on 144 and 432 MHz between Cairns and New Guinea, but so far information has not trickled this far!

Bob VK5ZRO mentions the nightly contacts are continuing successfully between him and VK5ZRG at Whyalla on 432, 100, also with Paul VK5QM at Coober, who built the Coober repeater. Bob also reports quite an upsurge in SSB activity in VK5 with 5 operators using the FT230R plus a DS linear. He said the combination leaves a lot to be desired unless some work to get the levels right are made, when the gear sounds quite good.

The new UHF repeater VK5RVP currently being tested by Mark VK5AVO is to eventually go up at the site of the present Ch 8 repeater site. Andrew VK5ZUC is operating on 70 cm.

There are now more than thirty stations capable of operating on 432 MHz in VK5. Jim VK5ZMJ at Port Pirie retired on 27/10 so we hope to hear some more of you Jim, best wishes. Mick VK5ZDR noted working Chris VK5MC and into VK3 recently on 2 metres did hear on the grape vine that either a contact had been made or a station had been received from Indonesia at Port Hedland in NW of WA recently, but so far no other details.

Operators in New Zealand will be holding one of the annual VHF Field Days over the weekend of 4th and 5th December, from 0500 to 1100 UTC on the Saturday, and 1900 to 0100 UTC on the Sunday. All bands will be used. There are no reports of any similar Field Day occurring in Australia.

Well, it's that time of year. Firstly, it's time for the usual increase in DX due to Es particularly on 5 metres, but do not overlook 2 metres. Most importantly, if you find strong short skip signals on 5 metres (in the 500 to 700 km area) it's always worth a call on 2 metres, because you may find a 1600 km path open to somewhere! Good luck. The other often prime time for 2 metres is around the end of January, early February period, lots of interesting things have been done in the past then.

May I take this opportunity of wishing everyone a happy Christmas as conditions will allow, and for greater prosperity in 1983.

Thank you to all my correspondents who keep me informed on the happenings throughout Australia, your letters are appreciated immensely, without them there just wouldn't be this column, that's certain. I also thank those Editors and Publicity Officers who send me various journals and publications throughout the year, often information from them can be used to the advantage of national dissemination.

Finally, thank you the Editorial Staff and Publications Committee of "Amateur Radio" for their assistance, tolerance and consideration throughout the years in the preparation of this column. A special word for Gil VK3AU who has been so great a help for a long time. This issue commences my fourteenth year of writing the VHF news, perhaps it's been too long, but then again I don't get too many breakfalls — I am sure you have long ago accepted the fact I can only report what I hear and read, and even now I still need to work at times to keep the wolf from the door!

Best wishes to you all, and Season's Greetings. Closing with the thought for the month "The Spanish call late middle age the age of metal" — the time of life when you have silver in the hair, gold in the teeth and lead in the feet!"

73. The Voice in the Hills

HIGHEST REPEATER IN THE WORLD????

From our northern cousins in Papua New Guinea comes news of a new proposed two metre repeater, to be established on Mount Albert Edward at a height of 13,000 feet.

It will be solar powered and will operate a power of 25 watts.

The profile is as follows:

EQUIPMENT

Philips FM 328 Transceiver
Transmit 146.650 MHz
Receive 146.050 MHz

POWER

3 x Solarax 2 amp 12 volt solar panels, and
2 x Delco 105 amp hour Solar batteries
and Solarax regulator

ANTENNA

AEA Isopole 5dB gain (theoretical)

DIPLEXER

6 x modified surplus AEA cavities.

IDENT

Morse at 15WPM (EPROM) 23PRAE

REMOTE CONTROLS AND TELEMETRY

- remote shutdown of transmitter via sub-audible tone as required by radio branch in case of fault
- Solar voltage via A-D converter.
- Power output control 1 watt or 25 watts via Touch-tone

Anyone interested in the VHF coverage maps or further details may write to Papua New Guinea VHF Group, PO Box 6240, BOROKO, PNG, enclosing a self-addressed envelope and 1 IRC to cover postage.

It is possible that the repeater may be operative in October, but a small problem has arisen in that the traditional land owners now find that the top of the mountain has a value, and will no doubt be asking for some fabulous rent for this piece of real estate.

(Information from P292TD in CARAMLT Official Newsletter of the PNGARS.)



QSP

NAIL POLISH IN THE SHACK?

Sounds silly... but listen

- I use red nail polish to mark dials and points on cabinets for rotary switches
- Red for the "off" button or switch on all equipment so the YF and harmonics will know what to push if I leave something on when I am out.
- I use red and white (other colours are available) to identify mating male and female connectors as in the case of the leads on a stereo or tape deck etc.
- If you have a screw or nut that tends to work loose with vibrations, a dab of polish under it will hold it solid.
- Don't overlook nylon cord and rope, a little polish upon the cut ends stops the raveling.
- Clear nail polish is ideal for waterproofing labels on equipment and electrical connections that tend to corrode.

(By KBDY) from ARNS Bulletin

June 82

The WIA is in business for more members. Please help.



THUMBNAIL SKETCHES



Peter Brown VK4PJ
18 Bodo Street, Balmoral 4171

HARRY KINGDOM WENT VANCE

Harry, who was born just after the turn of the century, took out his licence in Adelaide about 1927/28 after meeting Alf Treager. Harry's first set was equipped with a 201A and Ford coil and it took him eighteen days to strike the correct frequency, on 160 metres.

At that time Harry was working as a wheat-field farmhand. Later he lived with Alf Treager helping to build the first pedal radio sets and the original VJ1 base station which he installed in Cloncurry for the AI Mission.

Harry knew Andy Couper of cyclone fame but also had his own experiences with cyclones when he was the first contact with the Honiara when it was cyclone devastated, and also helped Tableland/Carna communication in an earlier cyclone.

Of Harry's many experiences outback, one was an overland trip from Adelaide with AIM sets, which trip is included in his collection of slides shown several times in Queensland, dealing with his Flying Doctor service.

Harry has for many years been a State Councilor for the Queensland Ambulance Transport Brigade representing the North and is a local Show Society Committee-man.



* Regrettably, Harry passed away just prior to going to press. See obituary next month.

J.P. "NIM" LOVE, 4JL, 1930, VK4JL.

"Nim", who was born in 1906, started with crystal sets before his teens and later joined the Woolloowin Radio Club when Hubert Kingston was president.

"Nim's" transmitter was fitted to the family yacht "Sweetheart", possibly the first radio equipped yacht in Australia, and was under the strict scrutiny of the radio inspector of that time, Tom Armstrong, who vetted all messages to



SWEETHEART

decide if a charge should be made. One power supply was an Evershed 1000V hand driven set, the next a bank of Edison wet cells, and later a Westinghouse 27/550V rotary on 12V. One of "Nim's" highlights was contacting W6NLZ with 9 watts, off St Helena, Moreton Bay.

Many other interesting stories can be told. Through the ranks "Nim" was promoted to Captain, artillery 1937, and on the outbreak of war to Battery Commander 2nd 5th Field Regiment through UK, Greece, Syria, Middle East finally ending service as a Lt Col, Light AA New Guinea.

"Nim" was a young flyer and earned Life Membership of the Royal Queensland Aero Club. He is also a long serving member of the Queensland Boy Scouts Association Executive, who have rewarded him with a Silver Kangaroo, one of their highest awards.



COL. GRANT. 4JQ 1925.

Col started radio in 1918 with a crystal set from "Boy's Own Paper," and could hardly carry the piece of galena that he obtained from the Queensland Mines Department for the set.

As one of the mainstays of the very active Woolloowin Radio Club, 4JQ, 25 members and 10 licensees, Col, under "Prescorres" (also a nickname), wrote articles for Queensland Radio News. For some years the club each year prepared all the articles for August issue of QR News.

Col, at the "drop of a hat" would write a ditty as "Lao Feenaghty" worshipped wireless as a "devenaghty", but when he got on the air, all the BCLs there, left the immediate "veceenaghty".

Col, who holds BA and B Comm degrees and is a qualified accountant, looked after Dalgety's taxation affairs until some 20 years ago when he retired to the Gold Coast. At this time some limitations are being placed on his physical activities.



LADDER OF ACHIEVEMENT

From Old Virginia HANE AHC

LADDER OF ACHIEVEMENT

100% - I do
80% - I can
60% - I think I can
40% - I think I might
20% - I wish I could
10% - I don't know how
I won't

Reprinted from: ARNS Bulletin - 8 '82

AR



EDUCATION NOTES

Brenda Edmonds VK3KT
Federal Education Officer

56 Baden Powell Drive, Frankston 3199



FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW

59 Albert Street, Carencia Gardens SA 5039

Statistics for the August AOC exams have been received from DOC. There is not much change from other recent figures in the Regulations or CW results, but the pass rates for the Theory section are in general the lowest they have been for some time. Of a total of 952 candidates sitting, only 308 passed — 32.4% compared with over 42% for the last two AOC exams. The figures by States range from 27.1% for VK4 to 37.2% for VK3.

The immediate assumption is of course that this exam was much harder than usual or that there must have been a number of bad or trick questions. We must remember though that several different papers are used — in the larger centres two in the one day it is unlikely that all papers would contain many bad questions.

Were they all harder? There were two possible ties — either some questions that are a lot harder than average or a higher ratio of hard to easy. I have not seen all of the papers used but of those I have seen, I do not think the standard was much different from that of other recent papers in either way. However in each paper there were a number of "new" questions — ones that have not previously appeared on exam papers — of which two or three per paper required the ability and knowledge to discriminate fairly finely between two alternatives.

It seems clear that the rising pass rates of the last few years' exams have been due to some extent to the "recycling" of questions and papers. Inevitably word spreads among candidates about the questions they have met so that they must have some idea of many likely questions before they reach the exam room. Most educators would agree that in a

situation such as this the continual presentation of new questions is necessary to maintain the expected standards. The AOC exam must be kept at a standard which ensures that Australian operators are at least equal to their overseas counterparts, and that gaining the Certificate of Proficiency is a worthwhile achievement.

Those who are at present studying for a future exam should see in these statistics the need for very wide practice in answering multiple-choice questions, so as to be prepared for as wide a range of questions as possible.

Read the syllabus carefully, making sure that it is all covered. Try to find questions on each part of the syllabus. In particular look for questions where it is hard to decide between two or three alternatives, then sit down with the books and work out why one is correct and the others not quite right. If there seem to be two right alternatives, perhaps one is more specific or better in the particular situation.

Remember, the aim of the exam is to test knowledge, not to set traps for the candidates. However, most of the exam questions are very carefully written, and the alternatives have been chosen with the same attention as the correct answer.

No exam is hard if you know the answers, but you must expect a few questions where you have to think carefully — before deciding on which answer — and you ALWAYS have to READ THE QUESTION — and answer the question that is asked.

Best wishes to those who are studying

— 73 Brenda VK3KT

I don't know why it is, that at this end of the year, the months seem to have less days and the days less hours. Perhaps I have some relationship (inversely proportional or otherwise) to the number of activities that have to be fitted in. Looking back over 1982 I have been a relatively quiet and uneventful year with none of the major traumas and dramas that we had last year with the "Tower cases". That doesn't mean that we have done nothing in VK5 this year. Actually we work very hard at keeping things rolling smoothly so that it looks as though we aren't doing anything! Probably, like most other divisions, our biggest headache is the finance one and treasurer John Butler VK5NX has gained quite a few grey hairs over the past two years trying to keep us out of the red.

Once again we have had to increase our fees, but rest assured that it was not done lightly, or without much soul-searching. We are lucky enough to have our own premises (leased, not owned as has been erroneously reported by other publications) which nevertheless have to be maintained and where possible improved. We are also one of the few divisions who still have their own "Journal". It has long passed the stage where a couple of duplicated sheets "would suffice". The number of members a one (1200 plus) would make a "do-it-yourself" Journal impossible. So we have had to go to a printer and although the finished product is one of which we can be proud, the cost to the division is the largest single item in our budget. We are doing our best to offset costs by finding new advertisers and keeping the old ones happy, and the gentleman who is currently doing this very well is Tom Sears VK5NTJ.

VK2's loss was our gain when Marshall Emm, the former VK2 Slow Morse Supervisor moved to VK5 recently. I hope that you will be very happy here. Marshall and I hear on the "Grapevine" that you have already been welcomed and found a job on our Slow Morse Panel (Call sign now VK5FN).

I hope that many of you will be at the Christmas Social on Tuesday 7th December. Bring your YL or XYL (or if you are a lady your OM or YM!) and don't forget a plate of supper. Drinks and some of the food will be provided by the division. The speaker will be Brian Moore from the Botanic Gardens, and his subject will be "Low Maintenance Gardening for the Adelaide Plains" (which should prove very popular, judging by the number of moans one hears on 2 metres, about "having to go and cut the lawn").

Last but by no means least I should like to wish you all a very happy and safe holiday season.

The first meeting of 1983 for the VK5 Division will be on 25th January 1983.

THE WIRELESS INSTITUTE OF AUSTRALIA

Has been the watchdog for amateur radio in Australia

**SINCE 1910
AND IS STILL GOING STRONG**

Join a new member now — send details to your division — or ask the interested person to write to —

WIA Box 150 Toorak Vic. 3142

**PLEASE HELP
WITH INTRUDER
WATCHING**

AWARDS

Mike Bazley VK8HD
FEDERAL AWARDS MANAGER
8 James Road, Karamunda, 6076

Details of awards from four continents are featured this month, who knows, one day we may make WAC.

DIPLOMA BRASILEIRO DE DX AWARD

"O Diploma Brasileiro de DX" — DBDX Award has been instituted by LABRE to encourage interest in DX on the lower bands

RULES

- 1 The DBDX award is issued for confirmed contacts with a minimum of twenty different countries (one of them has to be Brazil), as shown on the official DX-CC list
- 2 Special stickers for additional countries, in groups of 10 (ten) can be applied for
- 3 All contacts must be made on 160, 80 and 40 metre bands respectively. No cross-band or Phone to CW contact is allowed
- 4 There are two types of certificates, one for Phone-CW operation and the other for Phone only
- 5 A list station must be contacted from the same call area, or from the same country in cases where no call area exists. One exception is allowed to this rule, where a station is moved from one call area to another, all contacts must be made from within a radius of 150 miles (240 kilometres) of the initial location
- 6 All contacts must be 'land stations'. Contacts with ships, anchored or otherwise, and aircraft cannot be counted
- 7 Any contact from 15th November, 1945, is valid
- 8 All confirmations must be submitted exactly as received. Minimum reports are RS-33 for Phone and RST-336 for CW
- 9 The DBDX Secretary will keep an honor roll showing all awards issued and consecutively numbered
- 10 Applications must be submitted to "LABRE Awards Manager — DBDX PO Box 07-0004, Brasília — Distrito Federal Brazil — 70 000
- 11 Decisions of the LABRE Awards Commission regarding interpretation of rules as here printed or amended shall be final
- 12 Sufficient postage for the return of confirmations must be forwarded with the application — US \$2.00 or 10 IRCs

THE MARY ROSE AWARD

Further to the information given on this award in July AR there have been three revisions to the rules. These are Rule 1, only ten Hampshire contacts are required, Rule 2, five Hampshire stations and GB2MAR or G4JMR, Rule 6, the award costs £3 or the equivalent in Australian currency (On the present rate of exchange this works out to \$5.50) Enough said!

ALL AFRICA AWARD

This award is issued by South Africa Radio League. Any Australian amateur who wishes to apply for this award may do so by forwarding the necessary QSLs and postage for return, to me for certification

To qualify for the All Africa Award, confirmation must be submitted in respect of one contact from each of thirty-four (34) different call areas in Africa. Please note that all call areas must be on the continent of Africa. Islands round about Africa do not count for the AAA

Contacts MUST include one contact from each of the six (6) ZS areas, ie ZS1, ZS2, ZS3, ZS4, ZS5 and ZS6, plus one contact each with Botswana A2, Lesotho 7P6 and Swaziland 3D6 (ZD5). These nine (9) contacts are necessary. The other twenty-five (25) contacts may be with any of the areas listed below, one contact confirmed from each area. When the original areas have changed country prefixes, all the present prefixes that constitute the original area will count, as well as former country prefixes

All contacts must have been made after November 1945, with a minimum CW report of RST 336, or a minimum phone or SSB report of R3 S3

A list indicating call signs, mode of operation, date and signal report must be submitted, accompanied by QSL cards confirming contacts

In the case of applications from members of Societies that are member-societies of the International Amateur Radio Union, applications will be accepted if properly listed, duly checked and certified correct by the Awards Manager of the Society concerned. The certificate is issued free of charge to members of the SARL and a charge of R1.50 (10 IRC's) post-free to non-members is required

List of call areas from which twenty-five (25) contacts may be obtained to add to the nine compulsory contacts listed above

| NAME OF COUNTRY | PREFIX |
|--------------------------|-----------|
| Algeria | 7X2, 7X3 |
| Angola | 02-3, CR6 |
| Benin | TY |
| Botswana | HS |
| Burundi | 9U5 |
| Cameroon | TJ |
| Central African Republic | TL6 |
| Chad | TT8 |
| Congo Brazzaville | TN8 |
| Congo Kinshasa | 905 |



The Mary Rose Award

The Mary Rose, Henry VIII's flagship,
preserved in the silts of the Solent since 1545.

This Diploma is Presented to
THE HONORABLE SECRETARY OF AUSTRALIA
AS
BY THE MARCONI RADIO & ELECTRONICS CLUB
on behalf of the Mary Rose Trust
for excellent of Operating Ability

President 1981 The Prince of Wales KG, G3 PC CB Executive Director Richard J. Harrison PA4, Chairman To Sir David CBE

"your good ship, the flower & now of all ships that ever sailed"

Awarded May 1982 Date 31-5-82 Issuing Station ZS1000 CHW

Dahomey Republic
Djibouti

Egypt
Equatorial Guinea
Eritrea
Ethiopia
French Morocco
Gabon
Gambia
Ghana
Republic of Guinea
Republic of Guinea Bissau
Ivory Coast

Ivory Coast
Kenya
Liberia
Libya
Mali
Mauritania
Mozambique
Morocco
Niger Republic
Nigeria
Rwanda
Senegal
Sierra Leone
Somalia
Sudan
Tanzania
Tanzania
Togo
Togo
Tunisia
Tunisia
Uganda
Uganda
Volta Republic
Zambia
Zimbabwe

TZ (Fr Somali)
F.8)
SU
EA0
ET2
ET3
CH (Tanger)
TR
C5 (ZD3)
9G1
3X
J5 CR3
EA9 (Now part of Morocco CN8)
TU2
524
EL
5A
707
T2
515
C9
CN8 (Ceuta Melilla)
5U7
5N2
9K5
8W8
9L1
801 and 602
ST
CN2
5H3
5V4
S8
3V8
5K5
V8
X12
9J2
Z2 (Rhodesia-ZE)

Send all applications to the Awards Manager, South African Radio League, PO Box 3911, Cape Town, 8000, Republic of South Africa

NB ZS2MI is a station on Marion Island and does not count for the AAA

Finally back to Australia. The Queensland Radio Institute Amateur Radio Club offers an award to any amateur or shortwave listener who contacts or logs five licensed Railway Wren. Unfortunately I do not have details of cost, I am, and suggest a line to Frank A Loway, VK4AFW 22 McAlister Street Ipswich 4305, will bring more information. Do not forget to enclose a SASE (Also see Club Corner, page 83 Nov AR)

Well that's the lot for this month and as this will be the last column in 1982 may I take this opportunity to wish everyone a Happy Christmas and all that you may wish yourself in 1983. Happy DXing and 73 Mike VK6HD

FORWARD BIAS

VK1 DIVISION



Fred Robertson-Mud e VK1MM

Box 5288 Canberra ACT 2600

JANUARY MEETING

Please note that the January meeting of the division will be held on the 17th of the month, i.e. the third Monday in January, to avoid clashing with the Australia Day holiday

FEBRUARY MEETING

The Annual General Meeting of the VK1 Division will be held on 28 February 1983. The purpose of the meeting is to review the business of the past year, receive reports and the election of a new committee. If you wish to stand for election to the committee, you can obtain a nomination form from the Secretary, Richard VK1UE. Nominations must be in ten days before the day of the meeting.

The above meetings will be held in the Griffin Centre Studio at 8 pm as usual. It is in your interests to attend and participate. If the idea of serving on a committee seems dull and boring, there are many other ways you can help your division if you can't think of anything, come and see me and I'll give you a list

REPEATERS

By the time this appears in AR, the new 70cm repeater, VK1RUC, should be in position on Mt Ginini. As Ginini is about 5,800ft ASL, it will be interesting to see what the coverage of the repeater is like. The man mainly responsible for the construction of this repeater is Eddie VK1VP who has put a lot of time and effort into the project.

Channel 6 repeater VK1RAC was out of action for a short while recently due to a lightning strike (as opposed to a wild-cat strike). Peter VK1DS, another of our tireless workers, along with Dennis VK1DG had it back on air in only a few days. Bearing in mind the locations of both Channel 6 and Channel 7 repeaters, it is quite remarkable that we haven't had a lightning strike before.

BEACONS

The Committee has authorised the purchase of new crystals for the 2 and 6 metre beacons so that they can be put on the band plan frequencies. Alan VK1KAL has offered to construct the new aeriads and a new boom for

the beacons. Eddie VK1VP is constructing the 6 metre beacon. Due to the difficulty of access to the beacon site the installation work will only be done when everything is complete and can be installed in one operation.

NEW TOWER DESIGN?

Thanks to Ian VK1IC a few of the VK1s have cottoned on to the idea of buying slightly damaged street light poles for use as free standing towers. Suitable and simple adapted they make excellent 45 to 50 foot crank-up towers and, importantly, they are cheap. Perhaps Ian will send his design to AR for publication.

APATHY!

Let's hear it for apathy. Only 0.57% of amateurs in VK1 bother to report the increasing number of military/commercial intruders on our exclusive bands, and if both of them go on holiday we've had it. It would seem that Australian amateurs in general don't really care about their bands, and are quite prepared to let other countries carry the can for them. Have Australian amateurs no national pride? Why don't you get off your backsides and do something for the amateur service, for the WIA and/or for yourself. Don't be a parasite.

JOTA-VK1

The JOTA weekend was a great success in VK1, with three of the four stations set up being well patronised. The other station probably won't be on air next year due to the apparent lack of interest by the scouts in that particular area. On the amateur side things were extremely well organised and operated thanks to the efforts of a dedicated few. As regards the scouts, however, their organisation left a lot to be desired. As a male chavum, I am loath to admit that the girl guides could run rings round the scouts when it comes to organising ability — the girls even won the antenna erection competition. Still it is reported that a good time was had by all.

Fred VK1MM
Editor pro tem

AR

WIA INSERTS INTO AR



NOTICE TO WIA ZONES, CLUBS AND GROUPS

WIA Zone, Club and other Group Secretaries are hereby notified that inserts into AR henceforward will be accepted ONLY direct from a Division and then only by prior arrangement with the Secretary.

All inserts must comply with Postal Regulations and must be received not later than the 25th of the month preceding publication date.

MENTION

you saw it in AR

WHEN YOU BUY

from

ADVERTISERS

STRANGE BUT TRUE

FOUR BONES

Someone once said that membership of any organisation is made up of four bones

There are the WISH BONES — who spend all their time wishing someone else would do the work

There are the JAW BONES — who do all the talking but very little of anything else

Next come the KNUCKLE BONES — who knock everything that everyone else tries to do

FINALY there are the BACK BONES — who get under the load and do the work

AR



VK2 MINI BULLETIN

Athol Tilley VK2BAD

PO Box 1066, Parramatta, NSW, 2150

NOTE OUR NEW POSTAL ADDRESS:

P.O. BOX 1066,
PARRAMATTA 2150

OUR OFFICE IS NOW LOCATED AT:

109 WIGRAM STREET
PARRAMATTA

PHONE: (02) 689 2417

LISTEN TO BROADCASTS FOR FURTHER DETAILS

** Please note phone no. amendment.

NOTICE

The Annual General Meeting of the Wireless Institute of Australia, New South Wales Division will be held on 2pm on Saturday, the 26th of March, 1983.

Nominations for election to Council and agenda items for this meeting should be directed to The Secretary, PO Box 1066, Parramatta, NSW, 2150 and must reach the divisional office no later than Wednesday, the 23rd of February, 1983. Nominations forms may be obtained from the office, either by calling, writing or phoning (02) 689 2417.

Any ordinary (ie full) member of the WIA NSW Division may stand for election to the Divisional Council. Would members please note that no business may be discussed or voted on at the AGM unless all members receive notice of such business (see Article 31). Please ensure that any motions you wish discussed reach the office by the 23rd of February, 1983.

(sgd) Athol Tilley VK2BAD
Hon Secretary WIA NSW Division.

COUNCIL REPORT

The Divisional Council met on the 8th of October at the divisional office at 109 Wigram Street, Parramatta.

A request for affiliation with the WIA NSW Division from the Tamworth and District Amateur Radio Club was granted, making a total of thirty one clubs affiliated with the division. Council appreciates the support shown by the Tamworth club by its affiliation.

Council decided that the bank interest bearing deposits held by the division be converted to longer term, higher interest investments as they matured. Thirteen new members were accepted for the month.

Written reports and recommendations for a Divisional policy statement concerning concessional pensioner subscriptions and student members were presented by the VK2 Federal Councillor, Stephen Pall VK2PS. This Division suggested that the Federal Budget should bear part of the pensioner concessions granted and that a uniform Federal Policy and application form be adopted by all divisions. We also proposed that uniform student concessions be adopted by all divisions and that student members make a small contribution to the Federal Budget.

Items from the 5th Conference of Clubs, which was held at Wollongong, were discussed and a full report on council action was to be presented at the 7th Conference of Clubs.

Due to many other commitments, Stephen Pall VK2PS resigned as the WIA Education Service Liaison Officer.

The Moree District Radio Club advised that they were unable to comply with Article 82 and their affiliation with the WIA NSW Division was terminated.

Council discussed candidates for the Ron Wilkinson Achievement Award and the Dick Smith Educator of the Year Award. The winner of the Educator of the Year award will receive a presentation at the 7th Conference of Clubs.

Ways of upgrading the Dural building and of obtaining additional storage space were discussed and Dural Officer Jeff Pages VK2BYY was authorised to make arrangements for the sale of any surplus equipment to WIA members.

SLOW MORSE SERVICE

The introduction of daylight saving means that the nightly VK2BWI slow morse transmissions on 3.550 MHz now commence at 2030H local (can't have that extra sunlight fading your morse key!). This of course is still 0630 UTC.

This service is provided by volunteer operators, who provide their time, so prospective amateurs or those wishing to upgrade their morse proficiency can receive regular on-air practice. If you wish to assist as an operator, please contact Ross Wilson VK2BRC, the VK2 WIA Slow Morse Co-ordinator.

All amateurs can assist by keeping clear of 3.550 MHz during the slow morse sessions preferably at least 5 kHz away, and give those learning a fair go. Perhaps these sessions helped you gain your licence, so you can now return the favour.

DIVISIONAL OFFICE

The office of the NSW Division is located on the first floor, 109 Wigram Street, Parramatta.

Office hours are from 11am to 2pm weekdays and the phone number is (02) 689 2417. Please send all correspondence to PO Box 1066, Parramatta, NSW, 2150.

The office and library is also open each Wednesday evening from 7pm to 9pm.

Facilities at the new office include publication sales and information, QSL card drawers and the members lounge/library. Please call in and inspect the new facilities and use them — they belong to the members of the division.

MEMBERSHIP RENEWAL

By now, you will probably have received your membership renewal notice. Yes, you're right — they have increased.

This Division has increased its rates ONLY to cover the \$2 increase in the Federal content. Our share of your fees is the same as last year — we get \$7 and Federal WIA get \$22 for each full member. We are doing everything possible to hold down membership fees.

When you consider the many services your membership provides eg broadcasts, AR magazine, QSL Bureau, Library/Lounge discounts on publications etc, I am sure you get value for your membership dollar. Continued enjoyment of our hobby is dependent on representation of our interests by a strong WIA, something that you cannot put a dollar value on.

Please pay your renewal promptly and assist us in maintaining these services.

AUSTRALIAN CALLBOOK

The 1982/83 Australian Amateur Callbook is now available from the divisional office. It contains much more information than last year, with information on EMC, WICEN, Repeaters, Radio Clubs, Satellites and much more, including call signs! Obviously the Federal WIA Publications Committee have spent a great deal of time in its preparation. The usual discount to WIA NSW members applies and the cost is \$3.60 at the office and \$4.60 posted.

Note that the phone number for the division is incorrect and should be (02) 689 2417.



Photo Courtesy: John JA HUI VK2DOK

View of the new Divisional Office

PUBLICATIONS

It has been necessary to increase the prices of a number of publications. If you wish to receive a new price list, please call at the office or send a stamped, addressed envelope to PO Box 1086, Parramatta, NSW, 2150. A new list will be included with each callbook purchased through this division.

The members of the NSW Divisional Council would like to take this opportunity in wishing all members the compliments of the season and a prosperous and healthy new year.

WESTLAKES AMATEUR RADIO CLUB, TERALBA

WESTLAKES TRYFECTER drawn at the Conference of Clubs, 31/10/82.

List of Winners

1st Ticket No 1266,
I Brauer, Coffs Harbour

2nd Ticket No 670
A Skerrett, VK2VTN

3rd Ticket No 1030
M Tilley, Villawood

E.C. Brockbank,
Secretary

DETAILS OF FOUR CLUBS AFFILIATED WITH THE NSW DIVISION

ALBERT ARC
c/- M. Randall, 39 Spence Street, Dubbo, NSW, 2830
President: Brian VK2DDC, V-Pres: Ross VK2DVU,
Secretary: M. Randall, others: Leo VK2DGG, Robert VK2EAS, Ron VK2DDQ, Peter VK2BXQ

AVONDALE ARC

Avondale College, Cooranboon, NSW, 2265. Meetings at Avondale College, irregular. President: Robert VK2DFX, Faculty Sponsor: Ray VK2ERC. Secretary: John Harvey, others: Kenneth VK2BNO, Gary VK2PMQ, Fred VK2VIQ

PORT MACQUARIE ARC

PO Box 712, Port Macquarie, NSW, 2444. Meetings: Quarterly at the SES HQ, Bridge Street, Port Macquarie. President: Bill VK2ZCV, V-Pres: Arthur VK2ATM, Secretary: Lester VK2BFP, others: Lewis VK2LS, Frank VK2DUQ, Ron VK2DOR, Geoff VK2DPE, Keith VK2XDL, Bob VK2EJK, Henry VK2ZHE. Classes: NACOP & ADOP every Monday night at Port Macquarie H.S. Additional classes also at Kemptsey Magazine. Outlets, published quarterly. Editor: Lester VK2BFP. Repeater: VK2RPM channel 6700. Field Day: Queen's Birthday weekend at Port Macquarie.

ST GEORGE ARC

PO Box 77, Penrith, NSW, 2222. Net: Tuesday at 1930H EST on 14.110 MHz, Tuesday at 2000H EST on 28.520 MHz, Sunday at 0800H EST on 3.555MHz — all using VK2LE. Meetings at 2000H EST on 2m R6800 using VK2LE. Thursday 1st Wednesday of each month at Allawah Scout Hall, cnr Bakesley Rd and Belview Parade. Sunday Hurstville at 7.30pm. President: Gordon VK2BGA, V-Pres: Jim VK2NPA, Secretary: Denick VK2AZS, others: Brian VK2ZBP, Paul VK2ZSA, Alan VK2ZF, classes: NACOP, Mondays at 7.30pm. SES HQ in Highgate St, Berkey Magazine, Dagnet, monthly Editor: Anthony VK2BGC, Repeater VK2RLE channel 6800 and VK2RDX channel 6650.

GOSSFIELD VHF

Ross H.J. VHF Contest: 4th December to 31st January. John Moyle NFO Contest: 12/13 February 1983. Gosford Field Day at Gosford Showground 20th February 1983. Nominations for election to Council and AGM agenda items due 23rd February. Annual General Meeting WIA NSW Division 26th March. NSW members and clubs are invited to submit news items for inclusion in these notes to WIA, PO Box 1086, Parramatta, NSW, 2150. Items for February 1983 AR must reach us by the 3rd of January, 1983.

Atoll VK2BAD



VK4 WIA NOTES

Bud Pounsett VK4QY

30 Lassener Street Kedron Qld 4031

Another year is almost over! Some of us might say whatever happened in 1982? So let us take a look back over this old year of 1982 to see what we did achieve.

January saw an international rescue in which, among others, a VK4, Barry VK4BCC, played an important part. This was the emergency created when the yacht Cyns was caught in a cyclone in the South Pacific waters and became lost. Barry was a major link in communications with the RNZAF Orion search aircraft and the yacht. This incident had a happy ending with the rescue being carried out by a French Ingate out of New Caledonia. A sequel to this affair was the journey in October by two of the Cyns's passengers, Canadians Jim and Linda, who travelled to Monto to thank Barry personally.

February was again council election time, when Guy Minter VK4ZXZ, became our State President. We were unable to muster a full council of twelve, so this year has seen the few carrying the load.

April was a big month. Radio Club Workshop, the preparation of our two federal councillors, Dave Laurie, VK4DT and Guy Minter, VK4ZXZ and a special lecture evening. Twenty or so delegates assembled at Griffith University (later to become the Games Village) for the Workshop, our most successful so far. Some important items came out of that weekend, notably WIA Policy Statements which were very well received at the Federal Convention and generally adopted in toto. The Workshop was also very useful in getting together, informally, Club representatives from all over Queensland. Discussions on a wide range of subjects continued well into the night and early morning. The "live-in" aspect got the delegates together at meals and made many more hours available. Everyone, including the treasurer, went away knowing that the Workshop was worth every cent of its cost. Special thanks go to Fred, VK4AFJ, Ann VK4NRA, Rod VK4YRT/NBD for months of preparation and to the Hon. David Jull, MHR for his address to the meeting.

A special meeting in February was arranged so that Dr Leo McNamara, who was visiting Brisbane could deliver a series of lectures on the IPS, of which organisation he is Principal and on ionospheric predictions generally.

At the May general meeting, Dave Laurie VK4DT, our federal councillor, gave a detailed account of major discussions and decisions at the Federal Convention.

June saw our president, Guy Minter and his wife Ann, VK4NRA, who is bookshop manager, on the road north visiting clubs up as far as Townsville. Guy was able to speak at several clubs and help cement club-WIA relations. Clubs visited were Gladstone, Rockhampton (central Queensland branch of WIAQ) and Townsville. Many VHF contacts were had along the way.

July heralded the first education seminar in Toowoomba. This was to educate the educators and was aimed at providing teaching

techniques for club instructors. Class instructors from several clubs in South East Queensland and the Darling Downs attended. Ron VK4AGS, a high school teacher, was in charge for the weekend, while vice-president Rod VK4YRT/NBD brought it all about in his capacity as Education Councillor. More of these seminars are planned for other centres in 1983.

The preparation for and the operation of, AX4QCG, the Commonwealth Games Station occupied several members over August, September and October. Hard work by VK4AFJ, VK4YRT, VK4AGS, VK4NVL and many others culminated in a very successful ten days of bringing AX4QCG to the world. The siting of the station at the Queen Elizabeth II Stadium brought amateur radio to the notice of thousands of people and the ABC showed AX4QCG on the 7pm News for at least further publicity. We Queenslanders were very proud of the way in which the Twelfth Commonwealth Games were conducted in our state capital and Australian amateurs can be proud of the way in which the amateur station at the games was organised, presented and operated.

JOTA Weekend in October had plenty of Sunshine State participation even though very unusual conditions were experienced on the Sunday.

Until this year, we had not held a state convention since 1979. This November, in conjunction with the ever-popular Gold Coast Ham Fest, saw another VK4 state convention. The Queensland Division of the Institute wishes to thank the Gold Coast Amateur Radio Society for acting as host. Visitors were indeed honoured to have AR editor Bruce Baitois, VK3UJ as principal guest, Ken, VK4KD for GCARS and Fred, VK4AFJ, WIAQ council secretary, made a great team for this event. Maybe they can start looking ahead for 1983.

Throughout the year Queensland amateurs have been making their contribution to amateur radio, by putting VK4 call signs on the air, attending club meetings, some have had articles printed in AR, some have sent in intruder watch reports. Yet others have assisted by sending news items to the news editor in that department there is Nev VK4ANW, who provides predictions of propagation from Queensland to a growing list of points around the world, and Fred VK4FR, who tells of the rare DX. Then there is Jack VK4AGY, the VK4WIA station manager and his band of relay stations who are there every Sunday at 9am. This year the news department has been amalgamated to bring these VK4 notes, CTC (VK4 insert in AR) and the VK4WIA Sunday News Bulletin under one editor, who must thank his XYL, Bonnie, for checking grammar, punctuation and spelling and for doing such a good job as female announcer on VK4WIA.

Merry Christmas and Happy New Year

— VK4QY

AN

If you're interested in getting rid of the noise in your car, let her drive.

Amateurs who have nothing to say often prove it on 40 metres.

AN



AMSAT AUSTRALIA

Bob Arnold, VK3ZBB,

41 Grammar Street, Strathmore, 3041

NATIONAL CO-ORDINATOR

Chas Robinson VK3ACR

CORRESPONDENTS

VK3YQX VK5HI

ACKNOWLEDGEMENTS

AMSAT Satellite Report

ARRL News Bulletin

INFORMATION NETS

AMSAT-AUSTRALIA

Control VK3ACR

1000 UTC Sunday & Wednesday

7 064 MHz

AMSAT PACIFIC

Control JA1ANG

1100 UTC Sunday 14 305 MHz

AMSAT SW PACIFIC

Control W6CG

2200 UTC Saturday 28 880 MHz

Listen to the AMSAT AUSTRALIA net on Sunday night for Basic Orbital Data on all amateur satellites

AWARDS FOR SATELLITE OPERATING

In the August edition of Amateur Radio I referred to the Oscar Satellite Communications Achievement Recognition issued by AMSAT in the USA.

Colin VK5HI tells me that he is not now handing this award and no further claims should be sent to him.

AMSAT members interested in the award should communicate direct with Washington

PHASE IIIB ACTIVITY

Things have been fairly quiet on the satellites during recent months, particularly on the more difficult Mode 'J'.

Perhaps the explanation is typified by John VK4TC, of Cairns who tells me that he is concentrating on the construction of 23 cm equipment for the Phase III uplink. So far he has completed a verator tripler from 70 cm for use as a transmitter. The receiving converter is well under way with the crystal oscillator and multiplier working.

There is only one other amateur station in the Cairns district active on 23 cm so John may have some problems in getting his gear aligned for the 1269 MHz uplink frequency.

In southern VK3 there is reasonable activity on 1296 MHz but I am not sure whether the stations working this band intend to use Phase III, certainly some of them have worked through our satellites in the past.

I would be very interested to know what preparations are being made by other stations for Phase III and, of course any other general information on satellite activity.

Drop me a note and help me make this segment of our magazine a two way effort

TIPS FOR THE 70 cm OPERATOR BY N6CA.

From Mode 'J' Newsletter with thanks

Stacking antennae can actually hurt your operating flexibility if done incorrectly. The best advice I could ever give you in this respect is to go for maximum beam-width. Most stations today run four antennae in a 2 x 2 arrangement. This will take up only 5' x 5' and be easy on the rotor. However a much over-looked method is a

4 high by 1 wide configuration. The thing most people don't realise is that this gives just as much gain but leaves you with the same easy to point beam-width as a yagi. The vertical portion of the pattern is very narrow making it as difficult to point for EME as a 16 yagi 4 x 4 array. For tropo though, try it, you'll like it.

Also don't try to make one antenna do everything at the expense of your sanity. Ever tried to track OSCAR with an EME antenna? 70 cm antennae are tiny and easy to make, so build antennae which suit their intended major use, be it EME, satellites, or tropo. Got a single direction where many stations are but they are very far away? Try a Laporte stacked rhombic. At 70 cm it can get tricky but a 27dB gain, 5 degree beam-width stacked rhombic is only 25ft long and doesn't have to be very high off the ground.

Another neat trick giving a surprising improvement is putting the preamp and final antennae change over relay up at the antenna. ANY loss ahead of the preamp degrades system noise figures and consequently the ability to hear very weak signals. It does far more harm than just a few tenths of a dB loss directly subtracted by the lossy part of the system. Moving the preamp and relay to the antenna can often give several dB improvement in signals. It is often as much improvement as doubling the array size. Think about that the next time you contemplate buying more antennae.

Watch out for preamps with bipolar transistors in them (MRF901), NE64533). These are recognisable by very wide bandwidth specifications. Often these preamps will overload your receiver with spurious signals from the local 460 MHz commercial stations. The GasFETs now hitting the market in the \$12-\$60 price range are by nature of their matching circuits very narrow band.

They can handle much higher overload signals and do not require a lossy filter up front. This lets you take full advantage of their phenomenally low noise figures (0.85-0.3 dB NF in respective prices above).

Before placing any preamp in line (especially something as costly as a GasFET) a few tests should be made to find out if the preamp will survive in your system. Provision must be made in the sequential biasing of the amplifier to ensure that all transmit/receive relays are switched and stable prior to the application of power.

Switching hot on 70 cm can destroy good relays as well as pre-amps. Any arcing in the relays due to hot switching will cause losses to concentrate in the relay, immediately destroying the temper in the spring portions of the contacts, if not worse. Good transmit/receive isolation is an absolute requirement if you intend to run any kind of power at all. Many relays, while good at HF, are terrible at UHF. They often provide only 30 dB of isolation between the preamp input and the amplifier on transmit. That means if you are running a kilowatt, you'll put 1 watt into the input of the preamp, smoking it nicely!

The goal is about 60 dB isolation even if it takes two relays to get it. Remember however

that any losses ahead of the preamp, even tenths of a dB, will seriously degrade the noise figure of the system. Find the lowest loss, highest isolation relay you have for use ahead of the GasFET.

If using two relays you may want to set them up to short the input of the preamp during transmit. Check to make sure your preamp can withstand a short on its input without oscillating. The reason for using a short instead of 50 ohms is to prevent damage during lightning storms where 50 ohms may as well be 50,000 when speaking of currents in lightning.

DISCLAIMER

With thanks to AMSAT Satellite Report here is a review of the final test phase of AMSAT's Phase IIIB satellite —

AMSAT's Phase IIIB satellite is now undergoing the final series of tests to prepare it for launch. The spacecraft is presently in West Germany at the University of Marburg "Satelliten Werks" of AMSAT DL President, Dr. Karl Meinzer, DJ4ZC. AMSAT's Vice President for Engineering, Jan King, W3GEY, travelled from Washington to Marburg 13 Sept. 82 to participate in the tests.

The series of tests will include the shake and vibration tests, transponder performance tests, tests of the Integrated House-keeping Unit (IHU or computer) and various other functional tests to assure that the entire spacecraft performs as specified. The malfunctions in the transponders that were revealed during the thermal vacuum tests performed in June (see ASA #35) at the Goddard Space Flight Centre have been corrected. Minor redesign was performed to eliminate some instabilities that showed up at elevated temperatures.

Results of the present tests may provide the best estimates yet of ground station requirements in terms of uplink power and receive sensitivity. These specification refinements will result from definitive characterization of the spacecraft RF system in terms of effective radiated power, antenna patterns, RF power generated and receive sensitivity.

Following successful completion of the present battery of tests, Phase IIIB may be placed in storage or it may be "burnt in" at the lab. Often it is desirable to age an electronic device to increase long-term reliability. This is commonly called a "burn in period". Paradoxically, to maximize the long term reliability of the device, it is often desirable to "put some miles on the odometer". While this would seem at first blush to make it more likely that a failure would occur in the predicted life of the device, it actually decreases the expected long-term failure rate by nabbing a class of failures occurring early. Early failures are called "infant mortality" failures. In reliability analysis, failure rates often resemble a saddle curve where most failures occur very early and very late in the design life of the device. By burning in the device, the strategy is to accumulate "use hours" and get to the lower regions of the saddle curve

Telemetry Sensor Allocation

| Channel | Parameter | Range | Cal Equation |
|---------|-------------------------------------|--------------|--|
| 00 | Secondary S/C Computer (F100L) | 0 1A | $I = 1.2N \text{ mA } (0.125A / 1A)$ |
| 01 | Solar Array Current + X | 0 - 2A | $I = 1.12N + 200(\text{for is less than } 200 \text{ mA})$ |
| 02 | Battery Half Voltage | 0 10V | $V = N/100 \text{ } ^\circ(1.01)$ |
| 03 | Radiation Detector A O/P | 0 5V | Count = $40N \text{ } ^\circ(1.04)$ |
| 04 | Radiation Detector B O/P | 0 5V | Count = $40N \text{ } ^\circ(1.04)$ |
| 05 | Magnetometer Expt. HX-Coarse | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 06 | Magnetometer Expt. HY-Coarse | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 07 | Magnetometer Expt. HZ-Coarse | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 08 | Battery Pack-A Temperature | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 09 | Spacecraft Facet Temperature + X | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 10 | Visual Display Expt & CCD Current | 0 1A | $I = 1.2(N - 30 \text{ mA } (0.15A / 1A))$ |
| 11 | Solar Array Current + Y | 0 - 2A | $I = 1.12N + 200(\text{for is less than } 200 \text{ mA})$ |
| 12 | 2.4 GHz Beacon Expt. Power O/P | 0 - 2000mW | $P = (N - 99) \cdot 0.633 \text{ mW}$ |
| 13 | Radiation Detectors Expt. EHT Volts | 0 - 1000V | $V = N \text{ volts}$ |
| 14 | Radiation Detectors Expt. Current | 0 250 mA | $I = (N + 20)/8 \text{ } ^\circ(0.983) \text{ mA}$ |
| 15 | Magnetometer Expt. HX-Fine | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 16 | Magnetometer Expt. HY-Fine | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 17 | Magnetometer Expt. HZ-Fine | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 18 | Battery Pack-B Temperature | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 19 | Spacecraft Facet Temperature -X | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 20 | Spacecraft Computer Current | 0 - 1A | $I = 2(N - 25) \text{ mA } (1.125A / 1A)$ |
| 21 | Solar Array Current -X | 0 - 2A | $I = 1.12N + 200(\text{for is less than } 200 \text{ mA})$ |
| 22 | Battery/BCR + 14V Bus | 0 - 20V | $V = N/50 \text{ } ^\circ(1.056)$ |
| 23 | Sun Sensor + Z Axis | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 24 | 10.4 GHz Beacon Expt. Current | 0 - 250 mA | $(N - 40)/4 \text{ } ^\circ 0.97$ |
| 25 | Magnetometer Expt. Temperature | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 26 | Magnetometer Expt. Current | 0 250 mA | $(N/8) \cdot 0.9945$ |
| 27 | Telecommand Receiver Current | 0 250 mA | $I = (N - 16)/8 \text{ } ^\circ(0.952) \text{ mA}$ |
| 28 | Module Box Assy. Temperature + X1 | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 29 | Spacecraft Facet Temperature + Y | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 30 | Battery Charge Current | 0 to + 5A | $I = 3N \text{ mA}$ |
| 31 | Solar Array Current - Y | 0 - 2A | $I = 1.12N + 200(\text{for is less than } 200 \text{ mA})$ |
| 32 | Power Conditioning Module + 10V | 0 - 20V | $V = N/60 \text{ } ^\circ(0.93)$ |
| 33 | Telemetry System Current | 0 20 mA | $I = (N - 16)/3 \text{ } ^\circ(1.084) \text{ mA}$ |
| 34 | 2.4 GHz Beacon Expt. Current | 0 - 250 mA | $I = 0.4(N - 11) \text{ } ^\circ(1.072) \text{ mA}$ |
| 35 | 145 MHz Data Beacon Power O/P | 0 - 2000mW | $P = (N - 82) \cdot 1.67$ |
| 36 | 145 MHz Data Beacon Current | 0 250 mA | $I = (N - 7)/4 \text{ } ^\circ 1.014$ |
| 37 | 145 MHz Data Beacon Temperature | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 38 | Module Box Assy. Temperature -X1 | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 39 | Spacecraft Facet Temperature - Y | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 40 | + 14V Line Current | 0 5A | $I = 2.86N \text{ mA}$ |
| 41 | + 5V Line Current | 0 5A | $I = 1.28(N - 50) \text{ mA } (0.075A / 1A)$ |
| 42 | Power Conditioning Module + 5V | 0 - 10V | $V = 2N/300 \text{ } ^\circ(1.12)$ |
| 43 | Sun Sensor - Z Axis | 0 5V | $V = N/200 \text{ } ^\circ(1.01)$ |
| 44 | HF Beacons Expt. Current | 0 - 250 mA | $I = (N - 36)/3 \text{ } ^\circ 1.038 \text{ mA}$ |
| 45 | 435 MHz Data Beacon Power O/P | 0 - 2000mW | $P = (N - 102) \cdot 1.762$ |
| 46 | 435 MHz Data Beacon Current | 0 250 mA | $I = (N - 34)/3 \text{ } ^\circ 1.053 \text{ mA}$ |
| 47 | 435 MHz Beacon Temperature | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 48 | Module Box Assy. Temperature + Y1 | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 49 | Spacecraft Facet Temperature + Z | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 50 | + 10V Line Current | 0 5A | $I = 3N \text{ mA}$ |
| 51 | - 10V Line Current | 0 5A | $I = 1.3(N - 60) \text{ mA}$ |
| 52 | Power Conditioning Module - 10V | 0 - 20V | $V = 0.0158N \text{ } 0.224 \cdot N \text{ } ^\circ(1 \text{ of } + 10V \text{ line})$ |
| 53 | Navigation Magnetometer X-Axis | 0 5V | $V = N/200 \text{ } ^\circ(1.01) \text{ } ^\circ$ |
| 54 | Navigation Magnetometer Y Axis | 0 5V | $V = N/200 \text{ } ^\circ(1.01) \text{ } ^\circ$ |
| 55 | Navigation Magnetometer Z-Axis | 0 5V | $V = N/200 \text{ } ^\circ(1.01) \text{ } ^\circ$ |
| 56 | Speech Synthesizer Current | 0 - 250 mA | $I = (N - 15)/10 \text{ } ^\circ 1.009 \text{ mA}$ |
| 57 | CCD imager Temperature | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 58 | Module Box Assy. Temperature - Y1 | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |
| 59 | Spacecraft Facet Temperature - Z | -30 to +50°C | Temp = $(474 - N)/5 \text{ } ^\circ(1.01) \text{ Degrees C}$ |

†Determine vector as follows: $B_x = -189.54(N_x - 336.55)$ $B_y = +183.406(N_y - 663.44)$ $B_z = -194.5(N_z - 406.5)$ $B_s = (B_x^2 + B_y^2 + B_z^2)^{1/2}$

before launch. Reliability engineers tell us that this method will reduce the likelihood of failure of the spacecraft during its orbital life. A suitable comparison is the appearance of a number of visits to the dealer you must make for corrective maintenance (as opposed to preventive maintenance) just after purchasing a new car. Little things such as a not-so-tight muffler clamp that rattles or an instrument lamp that fails to illuminate. That's infant mortality in cars. Fortunately, with our Datsun, Citroen, Ford or BMW, the dealer is nearby. Not so for Phase IIIB, *naturlick!* Much later on in the life of the car

the frequency of breakdowns rises again (the saddle effect on the other side of the curve).

All of the subsystems of Phase IIIB have accumulated ageing time as they were tested at the module (e.g. transponder or IHU) level. An interesting engineering question now arises regarding the efficiency of ageing at the spacecraft level. That is, does it make sense to age the spacecraft in the lab in its fully integrated state? We must rely on our engineering team to make this judgement, of course. Meanwhile, the

potential user community can rest assured that the most advanced analytical tools available are being applied to the Phase IIIB spacecraft during these pivotal tests at Marburg.

Since the launch of Phase IIIB may now occur in spring of '83, there is some time to work with, to further optimize the systems and to turn our confidence that once in orbit this penultimate amateur satellite will perform as expected.

LAUNCH DATE

As we go to press we hear that it is likely that, as a consequence of the Ariane L5 failure, the

AMSAT Phase IIIB and ECS-1 satellite payloads will be moved from the L7 launch vehicle to L6. L6 will probably be launched mid-April 1983.

STATUS REPORTS

UOSAT UOS.

UOSAT looks pretty good after being incommunicado. All systems appear to be working satisfactorily with the exception of the Radiation Detectors, it's particularly interesting to hear that the CCD camera is OK and that AMSAT-UK expects to put its PCBs for the Receiver Imaging Station on the market in the near future.

AMSAT OSCAR 8 and the RS Series.

All working satisfactorily

ORBITAL DATA

| Designation | Period Mins | Long Inc Deg W |
|-------------|-------------|----------------|
| AO-7 | 114 939382 | 28 736922 |
| AO-8 | 103 172311 | 25 795440 |
| UO-9 | 94 965351 | 23 741031 |
| RS-3 | 118 519719 | 29 756648 |
| RS-4 | 119 394564 | 975490 |
| RS-5 | 119 555309 | 30 015732 |
| RS-6 | 118 717115 | 29 806026 |
| RS-7 | 119 196171 | 29 925890 |
| RS-8 | 119 765139 | 30 068747 |

SEASONAL GREETINGS to all readers of this column. For our satellite operators it has been a somewhat frustrating year with the uncertainty of the launch of Phase IIIB and the disappointment encountered with UOSAT. On the other hand AO-8 and the RS satellites have performed faultlessly to give enjoyment to both old and new operators.

My sincere thanks to those who have contributed to these notes — please keep the information flowing for the benefit of all.

It is also appropriate at this time to acknowledge the assistance received from other organisations, without their help our monthly and weekly information service would be rather thin. I particularly mention —

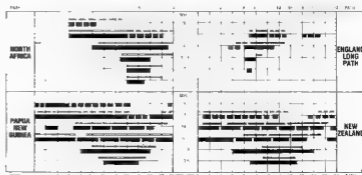
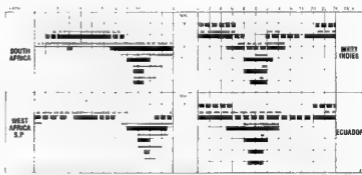
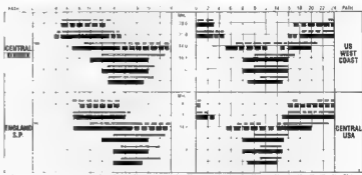
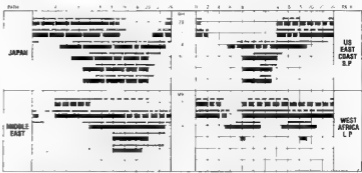
The Minister and Staff of the Federal Department of Science, Ron Broadbent and AMSAT-UK, ARRL RTTY Broadcasts, AMSAT and ASR, Mode 'J' Club.

Best 73's and good satellite operating in 1983

AR

IONOSPHERIC PREDICTIONS

Len Poynter
VK3BYE



QSP

HEATSHRINK TUBING

A neat finish to a solder tap connection is made by slipping a piece of heatshrink tubing over the wire before soldering, shrinking it over the wire and shank of the tap afterwards.

You can make these short lengths yourself out of conventional 'spaghetti'. Push a piece over the points of a pair of longnose wiring pliers and stretch to size under a hot tap. Still keeping tension on the pliers, immediately put under the cold tap and the 'spag' will stay stretched until heated with hot water or soldering iron.

Ken VIC2001
in the Propagator, Sept. 82

WICEN NEWS

Ron Henderson, VK1RH
FEDERAL WICEN CO-ORDINATOR

171 Kingsford Smith Drive, Melba, ACT 2515



This column, my 1982 Annual Report to the Federal Council and the WICEN & Emergency Communications Policy Statement all defined the four levels of amateur involvement in emergency or disaster assistance. May I remind you that these were an active member of a SES, an active member of WICEN, an active member of TPTNs, or a responsible operator.

This month I wish to draw your attention to the fourth group, the responsible operator, for I have not devoted much column space to this group in the past. The WIA Policy Statement above calls for an awareness service to acquaint members of the correct actions in emergency situations, this can be found in the general information pages of the Callbook and in the simplified operating guide published at intervals in this column.

An example of a responsible operator action came to my attention a few days ago, and even though the amateur involved may be reluctant to draw national attention to his actions, I feel his report which follows is worthy of publication.

Readers of QST will be aware of the Communications Service of the Month segment in their Public Service column. Whilst I don't think we need to go that far reports of WICEN and community service incidents by amateurs are always welcomed in this column.

Dear Ron,

This is a short note to advise you of an emergency radio communication provided by the amateur fraternity. It may be of some use as a taking point in your capacity as WICEN Co-ordinator.

On Friday 8th October 1982, I was travelling north along the Federal Highway towards Goulburn with my family when we came across the tail end of an accident where an elderly man had lost control of his late model sedan and overturned into the adjacent paddock.

On stopping and investigation of the lone occupant it was obvious that both ambulance and police were required to attend.

An urgent call was initiated on Channel 146.95 MHz FM to the Mt. Ginnin repeater and it was received by Peter VK2APP of Montego NSW. At this point a passing ACT police car on a return journey from Goulburn was flagged down for assistance. The police were approached to contact their base station. However this was not successful as the location severely attenuated their radio path. The messages for assistance to both police and ambulance were carried out by Peter and the results were relayed back to the attending constabulary at the accident site.

A short time later, both the Goulburn police and ambulance arrived on the scene to take charge of the situation.

The man involved in the accident was not able to free himself from the vehicle and gained assistance from the attending officials. His condition seemed reasonably stable and without major injury. A severe risk of heart arrest was present and this possibility was constantly monitored by Sue (XYL) until relieved by the police etc.

No further contact or reports of this matter has been sought or received since this occurrence.

It is very pleasing to be able to provide assistance to the police and to demonstrate the versatility of the Mt. Ginnin repeater over the variety of the police's excellent radio system. A very definite congratulations to the repeater committee for their efforts in providing this facility.

Let's hope that the continual button pushing and jamming that occurs on the repeaters in the major cities can be kept to a minimum or completely eradicated from this system.

Well Ron, that is all there is to report, I hope that you may be able to use some of the story to your benefit.

Best 73
Reg Dwyer VK1BR
AB

COMBINED VK4 EXERCISE

When does a WICEN emergency exercise become an emergency?

Brisbane operators found out unexpectedly during a combined exercise near Mount Nebo, west of the city, on Saturday, August 28.

The operators involved were John VK4QA, Dave VK4NLV, Phil VK4APA, Mark VK4ZJK, Alan VK4AL, Barry VK4KBM, Manfred VK4KHW, Miles VK4KBW, Doug VK4KSP and Geoff VK4AG.

Twice in previous weeks they had been involved in burn-offs in scrub and grassland on private property in the area as a precaution against a major bushfire later in the year.

This time, the operators with 2m hand-helds, met with the Mount Nebo and Samford bush fire brigades and the Pine Rivers State Emergency Service crews.

After a briefing, the fire was started with VK4KBW as base station in the Samford Valley with John VK4AQ liaison with the SES base at Jolly's Lookout high on the range above.

Various operators worked with the chipping parties, fire lighters and water wagons.

After about four hours on the steep mountainside, the chipping parties met and the fire was believed under control.

By now it was dark and the various operators made their way back to the mountain top for refreshments after a hard afternoon passing numerous unregistered messages as they worked.

At 7.25, after some operators had left for home, two parties were sent to investigate reports that the fire had jumped the break and was burning on another property.

Miles VK4KBW remained as base while Manfred VK4KHW and Doug VK4KSP went with the crews.

Doug took mountain climbing in the dark with extreme care as he had slid 10m down the side earlier when it was daylight.

The fire had jumped the break so Manfred and the rest of the team were called to join the fight.

All were kept busy, for as one blaze was put out another took hold. At least three large fires had to be extinguished.

The base did not close until, after 10 pm when Geoff VK4AG acted as base from his home phoning property owners to check the mountainside as well as operators' wives.

Then it was a hard slog back up the mountain for Manfred and Doug to a cold drink and a rest before driving home after midnight.

The exercise proved that trained operators would not panic in an emergency. The net worked smoothly and efficiently with messages precise and to the point.

Spare battery sets proved a must for the hand-helds and they were charged via car lighter plugs during breaks.

At no time was any operator without communications and mostly all stations in the field could be heard.

Both fire brigades said they could not have done without the WICEN operators.

The SES group did a tremendous job. Their 27 MHz hand-helds worked efficiently but after some time they had difficulties with reception and transmission due to the terrain.

As a result, Miles, Doug, Manfred and Geoff were awarded WICEN certificates for their active participation in an emergency.

Doug VK4KSP

MAGAZINE REVIEW



Roy Hankopt VK3AOH
34 Toowoomba Road, Ayrview, 3578

(G) General (C) Constructions (P) Practical without detailed constructional information (T) Theoretical (N) Of particular interest to the Novice.

73 Magazine, Oct. 1982.

Visual Overmodulation Indicator (P.N.) Safety with crank up towers (G) Experimental Microwave antenna (C) Low impedance Luner (P.N.)

Zero Beat, Oct. 1982, (Youth Radio Clubs) 2 Metre 'Fox' Transmitter (P) Examination Test Questions.

CQ July 1982.

Special VHF Issue Spread Spectrum Experiments (G).

CQ August 1982.

Antenna Special Long Wire Antennas (G) Effective Grounds (G).

CQ Sept 1982.

New angle on SSTV (G) Holographic Video (G) CQ DX Phone Contest (G).

QST Sept 1982.

Step Attenuator to 450 MHz (C) Letter from Subaru representative in Columbia, JSA suggesting cures for preventing RFI to the car's electronics. Among the suggestions is shielding the antenna.

CQ-TV No. 119 Aug. 1982.

FM television (P) 70 cm Converter (P) UHF Modulator (P) 2C39 Power Amplifier (C).

AB



CONTESTS

Reg Dwyer VK1BR
FEDERAL CONTEST MANAGER

Box 236 JAMISON ACT 2514

CONTEST CALENDAR FOR DECEMBER

- 4- Ross Hull VHF Contest
- 4-5 ARRL 160 metre CW
- 4-5 Spanish Phone
- 11-12 ARRL 10 metre
- 11-12 Spanish CW
- 19 Canada Contest

JANUARY 1983

- 9 Ross Hull VHF Contest ends
- 8-9 73's 40 and 80 metre contest
- 15 WCY Activity Contest Day
- 15-16 73's 60 metre Contest
- 29-30 White Rose SWL 3rd Test
- 28-30 CC WW 160 metre CW Test

FEBRUARY

- 12-13 NZART National Field Day
- 12-13 John Moyle National Field Day
- 12-13 QCWA CW QSO Party
- 12-13 Dutch PACC Test
- 12-13 YLQOM Phone Test
- 19-20 ARRL CW DX Test
- 19-20 YL ISSB Phone Party
- 26 73's RTTY Contest
- 25-27 CC WW 160 metre Phone
- 26-27 YLQOM CW Test

Happy Xmas and a Prosperous New Year
to all — Reg VK1BR

ARRL 160 METRE CW CONTEST

Starts 2200UTC Fri Dec 3
Ends 1800UTC Sun Dec 5

This is the 13th year for this top band activity. Exchanges will be between stateside and VE and DX stations. DX to DX contacts however are not permitted.

CLASSES Single operator and multi-operator.

EXCHANGE RST and your ARRL section country for DX and ITU region for maritime mobile.

SCORING Contacts between stations in ARRL sections count 2 points, with DX stations 5 points.

MULTIPLIER Determined by the number of ARRL sections plus VE/VY1 (maximum of 74) and DX countries worked (for WVE participants (DX use ARRL sections only).

FINAL SCORE Total QSO points times the ARRL section and DX multiplier.

AWARDS Certificates to the top-scoring single operator station in each section and DX country and to the top-scoring multi-operator station in each ARRL division and continent.

The ARRL 160 band plan requires that WVE stations transmit only in the 1800-1825 and 1830-1850 MHz segments keeping the DX Window (1825-1850 MHz) clear for DX stations. They will indicate where they will be listening for cross-frequency contacts.

The usual grounds for disqualification — violation of rules, excessive duplicate contacts etc — will prevail.

Logs with more than 200 QSOs must include duplicate sheets.

All entries must be postmarked no later than January 4th and go to: ARRL Communications Dept 160, Contest 225 Main Street, Newington CT 06111.

ARRL 10 METRE CONTEST

Starts 0000UTC Sat Dec 11
Ends 2400UTC Sun Dec 12

This is the 10th annual 10 Metre contest organised by the ARRL. It has become very popular because of the choice of entries available, so plan your strategy while conditions still prevail.

It's a worldwide activity in which DX stations are permitted to work other DX stations. You are not limited to working W/K's and VE's only.

The same station may be worked once on phone and again on CW no cross-mode however. A maximum of 36 hours operating time is permitted out of the 48-hour contest period for all stations.

CATEGORIES Single operator, mixed mode, phone only or CW only. Multi-operator mixed mode only.

EXCHANGE WVE stations (including KH6 and KL7) send RST(1) and state or province. DX stations (including KH2, KP4, etc) send RST(1) and QSO number starting with 001. Maritime mobiles send RST(1) and ITU region. Novice and Tech stations must identify M or IT.

SCORING Two points per QSO, 4 points if it's with a Novice or Tech.

MULTIPLIER Fifty US states, VE call areas, DX countries, and ITU regions.

FINAL SCORE Total QSO points times the state, province, DX country, and ITU region multiplier.

AWARDS Certificates to the top single operator in each category for each ARRL section and DX country, and to the top multi-operator station in each ARRL division and each continent.

Indicate the multiplier only the first time it is worked. Duplicate sheets are required for logs with 500 or more QSO's. The usual disqualification criteria will be observed.

Mailing deadline for all entries is January 12th to: ARRL Communications Dept 10 Metre Contest 225 Main Street Newington CT 06111.

1983: A WORLD COMMUNICATION YEAR AMATEUR RADIO ACTIVITY

In support of WCY event an amateur radio operating activity sponsored by the Potomac Valley Radio Club (USA) is being announced. This activity will promote all forms of domestic and international amateur radio communications. The scoring will require knowledge of the location of the 3 ITU Regions and 75 ITU Zones for Broadcasting. The ITU Regions are:

- 1 Africa Europe and USSR
- 2 North and South America
- 3 Asia and Pacific

The ITU Zones and amateur call-sign prefixes are listed in the IARU Radiosport Championship rules. You may send a SASE or IRCs to the address listed in paragraph 10 below for a copy of a map showing Regions and Zones.

RULES

- 1 **ELIGIBILITY** All licensed radio amateurs worldwide.
- 2 **OBJECT** To contact as many other amateurs anywhere in the world using 1.8 MHz to 27.5 GHz excluding the 10, 18 and 24 MHz bands.

3 **DATE** The activity will be the 24-hour period from 0001 UTC to 2400 UTC on Saturday 15 January 1983.

4 **CATEGORIES** There will be two categories: single operator and multiple operators. Both categories are mixed-mode. Only stations using one transmitter are eligible for an award.

5 **EXCHANGE** All stations will send the RST and their ITU Zone. The following stations would send the listed exchanges: DL1AA 126, W1AAA 206, JA1AA 345.

6 **VALID CONTACT** The same station may be worked once on each band. Telephony (including SSVT) and Telegraphy (including RTTY) emissions count as separate bands. No cross emission contacts are allowed.

7 **MULTIPLIERS** The ITU Zones worked on each band.

8 **QSO POINTS** QSO points are as follows:
4 Outside your ITU Region
2 Inside your ITU Region
1 Inside your Zone
1 Inside your ITU Zone

9 **SCORING** Multiply the total QSO points for all bands by the total zones worked for all bands.

10 REPORT NG

A All entrants are to use a suitable log form and summary sheet of their choice.

B Logs should indicate times in UTC, bands, call, complete exchange and QSO points for each QSO. Multipliers should be clearly marked in each log. Cross-check sheets (dupe sheets) are required if more than 200 QSOs are made on any band.

C Summary sheets should be a single page and show number of QSOs, QSO points and Zone Multiplier for each band and the total score. The summary sheet must contain the entrant's call sign, Region, Zone, name and address. Multiple operator stations must list the name and call (if any) of each operator. Entries for the special JHF/microwave award should be indicated on the front of the summary sheet with a description of the basis of the JHF/microwave award written on the back of the summary sheet.

D Entries must be postmarked by 28 February 1983. Mail entries to: PVRC Post Office Box 337, Crownsville MD 21032, USA.

11 **AWARDS** A plaque will be awarded to the high-scoring station of each category (single and multiple operator) in each of three ITU Regions. A certificate will be awarded to the high-scoring entrant of each category in each ITU Zone. In addition a certificate will be awarded to one JHF/microwave station of each ITU Zone judged to have displayed the most outstanding achievement. Members of PVRC may not receive awards.

12 CONDITIONS OF ENTRY

- A Each entrant agrees to be bound by the provisions of this announcement, by the regulations of its licensing authority and by the decisions of the Amateur Radio Activity Awards Committee
- B An entry may be disqualified if the overall score is reduced by more than two percent. An entry will be disqualified if more than two percent of duplicated entries are left in the log. A penalty of 8 QSO points will be assessed for each duplicate QSO or for each miscopied call sign or exchange log during the Awards Committee log checking

from Potomac Valley Radio Club

HUNTING LIONS in the air

Saturday, January 15, 1983 is the date of the 13th Annual "Hunting Lions in the Air" Contest, a world-wide project coordinated by the Arpoador Lions Club of Rio de Janeiro, Brazil. The Arpoador Lions will verify point totals on qso submitted to them by participants

Planned as more than a contest the real purpose of this unique programme is to promote international relations and to further friendship between individuals of different nationalities

Non-Lions are most welcome to join Lions. Leos and Lionesses in this amateur radio operator event it is expected that Lions, Leos and Lionesses will explain to non-members the purpose and ideals of Lionism and the significance of building international understanding and friendship through this programme

OBJECTIVE —

The principle objective of the contest is "To Create and Foster a Spirit of International Understanding and Cooperation" among Lions and amateur radio operators through worldwide communications. The contest is held in tribute to the birthday of Melvin Jones, the founder of Lions

SPONSOR AND COORDINATOR —

The contest is sponsored by LIONS CLUBS INTERNATIONAL and coordinated by the Rio de Janeiro ARPOADOR (Brazil) Lions Club. The coordinating Club will appoint a Contest Committee of no less than three members. The functions of this committee will be to verify the logs, tabulate points and submit its findings to the coordinating Club

The 1983 contest will be held on Saturday, January 15. It will start at 1200 UTC and continue for a 24 hour period

PARTICIPATION —

Participation in the contest is open to all duly licensed radio operators — Lion and non-Lion — except members of the Contest Committee of the Lions Club Rio de Janeiro ARPOADOR. There are two modes: Phone and CW. Participation in both modes is allowed, points are counted separately. All amateur stations participating must operate within the licensing regulation

CATEGORY

- (a) Single operator
(b) Radio Clubs and Radio Societies
- Points of radio clubs and radio societies will be counted separately. Multi-operators may participate, but each prefix must be listed on the log

BANDS —

Bands used are 80, 40, 20, 15 and 10 metres, phone and CW. Associates of the Lions Club Rio de Janeiro ARPOADOR will operate mainly within the first 50kHz of each band, either CW or phone. Stations of Lions Club

ARPOADOR will also operate around 14 270 and 21 270 MHz, from 1500 to 2000 UTC CALL

The call should be made in the following manner: Phone — "CO Contest Hunting Lions in the Air, Lions Clubs International," together with his call sign, CW — "CO Test Lions." Participating Lions, Leos or Lionesses should identify their Club name LOG

One log for each mode. Each participant will note on his logs the call sign, reporting and the sequential number of the QSO. When contacts are made with Lions, Leos or Lionesses the name of the respective Club contacted should be clearly identified on the log. Confirmation of contacts will be made by comparing log sheets, postmarked by air mail, not later than 30 days after the contest, to the Rio de Janeiro ARPOADOR Lions Club

POINTS AND BONUS POINTS —

Points and bonus points will be awarded in accordance with the following rules

- Only one QSO (Contact) with the same station in each band will be counted. Phone and CW will be counted separately
- QSO within the same continent 1 point
QSO between different continents 3 points
- Bonus 1 extra point for QSO with member of a Lions, Leo or Lioness Club and 5 extra points for QSO with member of Rio de Janeiro ARPOADOR Lions Club. Contacts between Brazilian stations and members of the Lions Club Rio de Janeiro ARPOADOR will count only 2 extra points

Contacts between members of the ARPOADOR Club will not count any bonus points

METHOD OF SCORING —

The Contest Committee will submit the results of the contest to the coordinating Club. In turn, will submit a report to the Chairman of the International Understanding and Programs Committee of the Board of Directors of the International Association of Lions Clubs before May 30 of the current year

AWARDS —

Lions Clubs International will present awards to amateurs in category "a" The top 3 in each mode will receive trophies 4th to 10th places will receive plaques. The 1st place in each mode of category "b" will receive a trophy

Participants sending logs showing a minimum of 5 contacts will receive a special Diploma issued by Lions Club ARPOADOR, in case the operator is a member of a Lions, Leo or Lioness Club, the Club will also be awarded a certificate

The Contest Committee will also confer a special prize to the Lions Club demonstrating outstanding participation of its membership

For more information within Australia, contact Allan Heath, Adelaide Flinders Lions Club 201 S3, Box 1904, GPO Adelaide, SA, 5001

Congratulations to Lindsay VK6SO, the winner of Category A phone section in 1982

INTERNATIONAL SHORT WAVE LEAGUE 14MHz SSB Contest

January 9th, 1983 0000-2400UTC Single Station/Single Operator Category (A) Licensed, Category (B) Short Wave Listener 14MHz phone band, with spot frequencies 14 175 and 14 225MHz

OBJECT: work/log also's in six continents

SCORING 1 point per station worked/logged 5 points per ISWL Transmitting Member, identifying by membership number 10 points per ISWL League Officer, identifying by "Lima Oscar" after membership number

MULTIPLY the number of continents worked/heard plus number of ISWL members worked/heard Category (A) exchange serial numbers (from 001)

LOG time, station worked/heard serial number (A) sent (B) received, ISWL number, if any, R and S, points claimed

LOGS TO Send by February 20th to Archie Brown, G2WQ, Oakwood, Lower Frankton Oswestry, SY11 4PB, England

EA DX TEST 1982

STARTS 1600 UTC Sat Dec 4
ENDS 1600 UTC Sun Dec 5
FREQUENCIES CW only on all bands 3 through 28 MHz with activity between EA stations and the rest of the world

CLASSES Single operator both single and all bands and multi-operator single transmitter all band only

CALL QX EA TEST The same stat on may be worked once on each band

EXCHANGE RST, 3 digit QSO number starting 001 Province for Spanish stations SPANISH PROVINCES EA1 LG, JL, OR, OLE ZA, SA, S, BJ, LO, SG, VA, VA, PA PO EA2 B SS VI NA EA3 B T L GE EA4 MC BA, M, TO CR CJ GU, EA5 V EA6 MC AB CS, EA8 PM EA7 J CO SE HU CA MA GR, AL EA8 GC TF EA9 CE ME

SCORING 3 points for DX stations
MULTIPLIER One multiplier per EA province worked on each band

FINAL SCORE Sum of total QSO points multiplied by sum of all band multipliers

AWARDS Plaque to top overall scoring station Both medal and certificate to the winner in each continent. Certificate to the winner in each DXCC and WAE country

LOGS Must be received by URE PO Box 220, Madrid, Spain, no later than Jan 15, 1983 Include a summary sheet showing the scoring, call sign and licence class and name and address

1982 RD CONTEST RESULTS

This was the first year of the new formula to determine the divisional winner of the RD contest. From the contest, a few points have arrived in which are well worth a mention

A very hearty congratulations to those of you who put in the effort to achieve a good score. Most of the logs were entered in the A, Section and a noticeable downturn in the entry of (B) CW/RTTY Section probably due to the reduction of the scoring value of CW contacts. A comment from one of the entrants points out that a CW contact takes twice the time of a phone contact but it's worth only the same value. This effectively reduces the scoring rate of the operator

Although this point is valid the number of contestants entering in the CW/RTTY Section is almost insignificant in comparison to the number of entrants in the phone section, therefore the contact/points made by the CW fraternity is a small contribution to the overall divisional score

The entrants in each section of the contest effectively compete against the other entrants in the same section. There is no relationship between the entrants in any of the other sections with the scores or points gained for awards. This means that awards for individual effort in each section is evaluated separately and rewarded separately

The rules published for this year's contest suffered at the hands of the publishers and resulted in much confusion. The logs received from those amateurs who bothered to read the rules were easily sorted out when received and in the main were correct

When checking the logs it became obvious that the contest rules were being tested by some of the amateur fraternity to see how much away they could be given. To overcome this banding of the rules it becomes necessary to produce copious rules of understanding complexity which will result in more confusion of the rules

and the procedure I feel that this should be unnecessary and the "amateur" is trustworthy and honest enough to act fairly to all others on the bands and in amateur radio.

Logs were received that were totally dishonest. Among these logs were the following faults:

No front sheet

No tally of the scores

Unreadable handwriting

No call sign or name

Dirty blotchy logs that seemed "second hand"

Rude and abusive remarks written on the logs

Badly totalled results

Incorrect points scoring (3 years old)

Badly packaged logs

If your log has not been published it is because of one or more of the above

Those of you who have relied on the light fawn coloured manila envelopes may have lost any number of logs in the mail. Such items as 200 plus log sheets contained in a flimsy envelope were received in a very bad state as the b's and boxes of Australia Post had taken its toll.

An estimate of 25 percent of all log envelopes received required major repair by Australia Post. A hearty thank you to the members of AP is well-earned.

To those of you who used the dupe sheets and prepared your log with some consideration to the recipient thank you very much.

Some comments from the logs have highlighted the frenzied activity that occurs during a contest and the problems that the novice has to contend with.

High powered full calls dominating the novice segment especially on 80 metres. Above the novice segment the contest activity was negligible and therefore the novices were almost non-existent in their portion of the band. Give them a go as well.

Demands of "This is my frequency" and the usual comments following.

Total refusal to converse with an overseas station during the contest. As if the rapid exchange of name report and QTH would severely hamper the contestant's effort. It would seem good manners to at least acknowledge the station and provide him with the necessary information.

Apart from the whinges and bitches the contest was very well received by the vast majority of the entrants and the overall object of allowing and encouraging all amateurs to participate was reasonably successful.

The contest score formula was designed to encourage those divisions that have a low participation rate to try to rally their amateur and to put them into contention for the trophy and for those divisions with a high participation rate to try harder and to increase membership.

The formula was taken from an average of the past eight years' participation and scoring rates and projected to an expected level of activity for 1982. If little or no increase in activity was evident with the division then the average score would be approximated. However the division which had been most active in communication, recruitment and participation throughout the year and the contest would show the most improved score and then win the trophy.

The VK5s have again shown that they are superior in their efforts and have shown a set of very clean heels to the rest of the divisions. Congratulations to the VK5 Division.

VK2 has improved their participation rate and have increased to come into second place well in the running for a try at the trophy. VK6 came a very close third and have shown

| DIVISION | TOT PTS / LICENCES | X WEIGHT FACT. | = | TOTAL SCORE |
|----------|--------------------|----------------|---|-------------|
| VK1 | 9882 / 352 | X 1.2 | = | 33.7 |
| VK2 | 17163 / 4289 | X 10.7 | = | 42.8 |
| VK3 | 23169 / 4592 | X 7.8 | = | 39.4 |
| VK4 | 12455 / 2137 | X 4.8 | = | 28.0 |
| VK5/8 | 43521 / 1732 | X 2.1 | = | 52.8 |
| VK6/9 | 33599 / 1182 | X 1.5 | = | 42.6 |
| VK7/0 | 11828 / 466 | X 0.9 | = | 22.8 |

that they are definite contenders for the trophy.

The rest of the scores speak for themselves.

| (A) PHONE | | (B) CW/RTTY | | (C) OPEN | | (D) CLUBS | | (E) PHONE | |
|---------------|-------|-----------------|--|---------------|---------------|-------------|----------------------------|---------------|-------------|
| CALL SIGN VK1 | SCORE | ZAA/NCF | 148 | QL | 111 | NAW + | 28 | II | 28 |
| GB + | 1039 | CAY | 146 <td>ZC</td> <td>108</td> <td>DI</td> <td>21<td>OL</td><td>21</td></td> | ZC | 108 | DI | 21 <td>OL</td> <td>21</td> | OL | 21 |
| BM | 817 | AM | 124 | DN | 105 | ABB | 19 | 2D | 19 |
| TD | 678 | RH | 118 | JM | 103 | BRC | 14 | 3C | 14 |
| BCE | 609 | ZOR | 115 | | 52 | TOTAL SCORE | 1112 | | |
| JW | 574 | DO | 100 | | | | | | |
| KAA + | 460 | DL | 80 | | | | | | |
| MK | 345 | EP | 80 | | | | | | |
| LF | 324 | ZAT | 77 | | | | | | |
| NEW + | 316 | KV | 75 | | | | | | |
| KAL | 311 | NET | 60 | | | | | | |
| KEN | 302 | MEJ | 60 | | | | | | |
| MM | 253 | BO | 42 | | | | | | |
| VP | 247 | MF | 35 | | | | | | |
| RK | 231 | NOV | 20 | | | | | | |
| ZAR | 230 | ML | 15 | | | | | | |
| UE | 212 | NCB | 10 | | | | | | |
| KAT | 200 | TOTAL SCORE | 8411 | | | | | | |
| (B) RTTY/CW | | (C) OPEN | | (D) CLUBS | | (E) PHONE | | (F) PHONE | |
| CALL SIGN VK1 | SCORE | MM + | 10 | CALL SIGN VK2 | SCORE | WI | 118 | CALL SIGN VK3 | SCORE |
| NOM + | 72 | TOTAL SCORE | 82 | ABZ + | 131 | TOTAL SCORE | 2507 | ARXZ | 229 |
| (D) OPEN | | (E) CLUBS | | (F) PHONE | | (G) PHONE | | (H) PHONE | |
| CALL SIGN VK1 | SCORE | OK | 210 | CALL SIGN VK2 | SCORE | WI | 118 | CALL SIGN VK3 | SCORE |
| CC + | 338 | FM | 143 | ABZ + | 131 | TOTAL SCORE | 2507 | ARXZ | 229 |
| IC | 418 | TOTAL SCORE | 1308 | CLUB RX | SCORE | 229 | TOTAL SCORE | 229 | TOTAL SCORE |
| (E) CLUBS | | (F) PHONE | | (G) PHONE | | (H) PHONE | | (I) PHONE | |
| CALL SIGN VK1 | SCORE | 80 | TOTAL DIV SCORE | 80 | CALL SIGN VK3 | SCORE | EF | 138 | 138 |
| ACA + | 80 | TOTAL DIV SCORE | 80 | CALL SIGN VK3 | SCORE | EF | 138 | 138 | 138 |
| (A) PHONE | | (B) CW/RTTY | | (C) OPEN | | (D) CLUBS | | (E) PHONE | |
| CALL SIGN VK2 | SCORE | BHX | 96 | BPW + | 1052 | XPX | 137 | BPW + | 1052 |
| BFR + | 771 | ZZX | 84 | ADRW | 887 | KDC | 126 | ADRW | 887 |
| DXG | 752 | AKC | 80 | DCA | 777 | BOB | 111 | DCA | 777 |
| OVU | 685 | EPJ | 80 | YRN + | 652 | YRP | 108 | YRN + | 652 |
| OUS | 429 | KHZ | 78 | DXE | 614 | BUC | 107 | DXE | 614 |
| DX | 406 | BYT | 73 | YXW | 609 | SV | 105 | YXW | 609 |
| ABM | 391 | DI | 65 | BOJ | 596 | BOD | 104 | BOJ | 596 |
| ADE | 351 | AKJ | 62 | ATN | 526 | ZJ | 102 | ATN | 526 |
| DM | 350 | VYP | 61 | WJ | 477 | DEV | 101 | WJ | 477 |
| KDT + | 278 | UC | 60 | DNE | 438 | YGX | 100 | DNE | 438 |
| YVT + | 262 | WT | 59 | DSI | 412 | BKK | 101 | DSI | 412 |
| HW | 251 | AZS | 58 | BLD + | 403 | JY | 100 | BLD + | 403 |
| OOD | 242 | DUA | 56 | ABV | 374 | ASP | 90 | ABV | 374 |
| DOR | 232 | PGE | 56 | BID | 357 | DMG | 85 | BID | 357 |
| PS | 210 | DCM | 54 | PD | 347 | KBB | 80 | PD | 347 |
| ABD | 198 | BAD | 53 | YPL | 345 | QZ | 79 | YPL | 345 |
| AGB | 157 | AJH | 50 | WJA | 336 | OP | 73 | WJA | 336 |
| PNO + | 196 | RHB | 50 | SZ | 323 | ARL | 70 | SZ | 323 |
| AGB | 179 | DFC | 47 | PBA | 314 | BMV | 70 | PBA | 314 |
| EBM | 179 | CBB | 42 | AYF | 310 | BRZ | 63 | AYF | 310 |
| ABC | 176 | CF | 40 | SM | 302 | OO | 62 | SM | 302 |
| QIV | 156 | DFE | 40 | DAK | 286 | DHN | 58 | DAK | 286 |
| NUN | 149 | WWV | 40 | YEZ | 274 | AXD | 57 | YEZ | 274 |
| YSN | 147 | ZOC | 38 | BI | 273 | ZBB | 55 | BI | 273 |
| AKO | 141 | IKO | 31 | AEK | 264 | FG | 52 | AEK | 264 |
| KNW | 140 | RSB | 23 | XF | 240 | YKT | 52 | XF | 240 |
| ACK | 139 | ABZ | 23 | BNR | 235 | ZFI | 51 | BNR | 235 |
| VEH | 128 | VNP | 21 | KJH + | 232 | PR | 50 | KJH + | 232 |
| APP | 125 | BDT | 20 | OKP | 210 | WY | 50 | OKP | 210 |
| OSM | 125 | VAM | 20 | YGT | 200 | X8 | 47 | YGT | 200 |
| DMT | 124 | OR | 18 | ZI | 200 | DGN | 44 | ZI | 200 |
| KCM | 119 | DLH | 17 | KAV | 199 | ANKW | 43 | KAV | 199 |
| NAW | 115 | AKO | 15 | SKM | 195 | BGB | 40 | SKM | 195 |
| KCV | 111 | EVAM | 15 | BENI | 179 | BIR | 38 | BENI | 179 |
| AJU | 110 | ZVN | 15 | DDX | 172 | BEE | 36 | DDX | 172 |
| BW1 | 105 | AOE | 12 | RV | 170 | SSO | 36 | RV | 170 |
| FJ | 102 | DO | 12 | WBP | 165 | PDZ | 26 | WBP | 165 |
| PNDX | 102 | XT | 12 | AEO | 164 | KS | 21 | AEO | 164 |
| PH | 102 | BDT | 11 | DMC | 151 | VAN | 27 | DMC | 151 |
| BCY | 100 | CU | 10 | NAV | 150 | DVT | 26 | NAV | 150 |
| DEW | 100 | LH | 10 | DOV | 149 | BYA | 25 | DOV | 149 |
| VSE | 99 | TOTAL SCORE | 10990 | DMC | 138 | BSH | 2 | DMC | 138 |

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40 Metre Antenna System

From Mel Riddell VE3QU

Waterdown, Ontario

Perhaps I should tell you that I received my licence on April 16th, 1933. Since that day it has been a series of dipoles, tripoles, uni-poles, verticals, G5RVs, WSDZZ, W8JKs, Lazy Hs, ZL Specials, Vee beams, long wires, Bob-Tail beams, short beams, long beams, trap beams and some with no name!!

I am a keen advocate of 40 metres and it is on this band that my antenna interest lies. During 1977 the DX potential during summer months attracted my attention and I wondered what would be needed to get through to Europe in the late afternoon and evening. However, on June 30, 1977, listening on the low end of 40 I heard a CQ from VK3MR . . . and made the contact through the long path. A period of trials with various antennas followed with VK3MR . . . he was always there. Then came the half wave sloper. It was followed by another and another until there were 5 all around the tower which was doing duty as a 180 metre vertical.

The shack now looked as though a family of spiders had invaded it . . . coax

leads from each of the slopers, the TA-33, 80 and 160 metre dipoles and two Beverage antennas! What a mess! A better way to feed was needed and the answer was found in the ARRL Handbook . . . It works well and the evidence is in the fact that the log sheet shows that the log shows over 160 countries on 40 CW and 150 on SSB. This was almost as much fun as my first real DX on 40 . . . G5YG in February 1936. He was in Scot and then and I was running 10 watts to a pair of 45s.

I have tried to reproduce the Handbook drawing . . . bear in mind even a single 1/2 wave sloper will perform well in the direction of the slope and does not require the same ground space as a regular dipole.

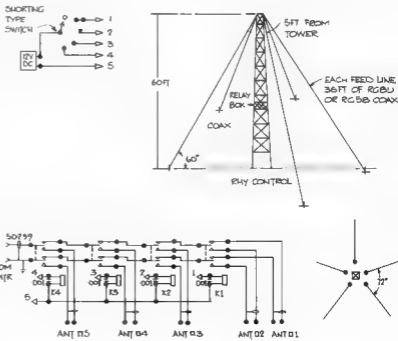
As pointed out in the article the reflector effect of the unusual sloper is because the floating 36 ft. of coax looks inductive to the antenna thereby lowering its resonant frequency approximately 5 percent. No mention is made of the antenna lengths . . . this will vary from location to location, installation elements, etc. . . not to mention tower coupling and proximity to other wires. IF YOU HEAR ZL4BO you might like to ask him about his sloper array . . . ask him to demonstrate it.

NOTE:

The braid of coax is also open circuited when not in use and the braid on these 36 foot lines to dipoles is connected to lower half of each antenna.

This antenna system is as designed by K1THQ and appeared in the ARRL Antenna Handbook, page 200, 13th edition.

Reproduced by arrangement from Jimmy", April/May 1982 (Journal of Royal Signals ARS — VK/ZL Chapter).



| (B) CW/RTTY | | |
|---------------|----------------|-----|
| CALL SIGN VK8 | SCORE | |
| HQ + | 168 HK | 20 |
| BO | 104 ABR | 19 |
| RF | 84 RU | 16 |
| AJ | 64 LF | 11 |
| GA | 59 TOTAL SCORE | 545 |

| (C) RECEIVING | | |
|---------------|-----------------|------|
| CALL SIGN VK8 | SCORE | |
| 160036 + | 959 Greenway | 15 |
| 160229 + | 329 TOTAL SCORE | 1013 |

| (D) OPEN | | |
|---------------|-----------------|--------|
| CALL SIGN VK8 | SCORE | |
| FE + | 822 IW | 152 |
| ED | 517 AN | 132 |
| NS | 415 RZ | 106 |
| JK | 409 FH | 54 AKO |
| KY | 408 TOTAL SCORE | 3034 |

| (A) CLUB | | |
|---------------|-----------------|------|
| CALL SIGN VK8 | SCORE | |
| SAA + | 516 SR | 89 |
| ARG | 328 ML | 82 |
| AP | 154 AWY | 64 |
| SD | 152 TOTAL SCORE | 1484 |

| (D) CLUB | | |
|---------------|-----------------|-----|
| CALL SIGN VK8 | SCORE | |
| SH + | 107 TOTAL SCORE | 107 |

| (A) PHONE | | |
|---------------|-----------------|------|
| CALL SIGN VK7 | SCORE | |
| PC + | 829 WZ | 117 |
| GE | 715 GF | 102 |
| KX | 527 WP | 102 |
| KE | 487 NDV | 100 |
| KC | 427 NTM | 100 |
| GG | 389 SG | 100 |
| KJ | 357 LR | 92 |
| MD | 313 PD | 90 |
| HL | 254 RM | 88 |
| F | 246 NOK | 82 |
| J | 210 TC | 69 |
| RP | 210 BM | 50 |
| RN | 207 AS | 49 |
| NKD + | 201 MG | 48 |
| SA | 201 WL | 43 |
| VW | 200 BJ | 35 |
| ZPK + | 200 RY | 34 |
| NWR | 178 AM | 26 |
| J | 155 MM | 24 |
| FE | 153 MC | 23 |
| J | 150 NEC | 22 |
| NWV | 155 KHS | 21 |
| KKV + | 154 NBF | 19 |
| DG | 153 PR | 18 |
| KMA | 153 DK | 16 |
| AL | 145 TOTAL SCORE | 8830 |

| (B) CW/RTTY | | |
|---------------|----------------|-----|
| CALL SIGN VK7 | SCORE | |
| RD + | 132 KA | 30 |
| CH | 170 RD | 29 |
| NRF + | 75 WL | 11 |
| RY | 73 TOTAL SCORE | 640 |

| (C) RECEIVING | | |
|---------------|-----------------|-----|
| CALL SIGN VK7 | SCORE | |
| 170217 + | 252 NW + | 772 |
| TOTAL SCORE | 262 TOTAL SCORE | 772 |

| (D) OPEN | | |
|---------------|-----------------|-----|
| CALL SIGN VK7 | SCORE | |
| KIM + | 200 BO + | 15 |
| ZY + | 194 TOTAL SCORE | 409 |

| (A) PHONE | | |
|---------------|----------------|------|
| CALL SIGN VK8 | SCORE | |
| KRD + | 564 NHR + | 62 |
| 5KZ/8 + | 344 NTF | 34 |
| AG | 83 TOTAL SCORE | 1087 |

| (B) CW/RTTY | | |
|---------------|-------|--|
| CALL SIGN VK8 | SCORE | |
| HA + | 29 | |
| TOTAL SCORE | 29 | |

| (A) PHONE | | |
|---------------|-------------|-----|
| CALL SIGN VK8 | SCORE | |
| KW XMAS S + | 141 AN + | 848 |
| TOTAL SCORE | 141 AB | 67 |
| | TOTAL SCORE | 915 |

| (A) PHONE | | |
|---------------|-------|--|
| CALL SIGN P29 | SCORE | |
| P29 NSF + | 267 | |
| TOTAL SCORE | 267 | |

| (A) PHONE | | |
|--------------|------------------|-----|
| CALL SIGN ZL | SCORE | |
| ZL3 ABC | 494 | |
| ZL1 ARY | 380 | |
| ZL1 M | 186 | |
| ZL3 PF | 40 | |
| TOTAL SCORE | 1100 TOTAL SCORE | 105 |



SPOTLIGHT ON SWLing



Robin Harwood, VK7RH

5 Helen Street, Launceston, Tas 7250

We I, 1982 is rapidly drawing to a close, and what a momentous year it has been on shortwave. In April, we saw open warfare erupt between Argentina and Great Britain, over the Falkland/Malvinas chain of islands in the South Atlantic, just east of the tip of the South American continent.

So the tiny local radio station in Port Stanley, which is a real DX catch at any time, took on a new significance, and sophisticated receiving equipment was hastily dispatched to monitor what was going on under Argentine Military Rule, to Punta Arena, in Chile, some 600 kilometres from the Falklands.

As the majority of Latin American opinion was pro-Argentinian the BBC External Services were expanded to bring the latest developments on the crisis. In particular, Latin American transmissions were increased to give the British view, as Argentine media sources were heavily censored. It wasn't long before the Junta in Buenos Aires start jamming all BBC Spanish language news and current affairs programming, as well as expanding their own external programming over RAE, to put their side of the conflict. As well, clandestine broadcasting stations also emerged into the scene. One station — 'Radio Liberty' came on in English and broadcast programmes to the 'Task Force', their style and presentation being reminiscent to that of Tokyo Rose, a voice of another conflict. Yet it is doubtful that any members of the Task Force were influenced, let alone actually heard these transmissions, because the choice of frequencies and propagation were extremely poor for this pro-Argentine outlet, which some suspect came from outside of South America, and was only spotted by chance by a British DXer.

The British Ministry of Defence as well requisitioned one of the BBC's Ascension Island Relay transmitters, to carry a programme in Spanish, mainly directed to the Argentine garrison on the Falklands. So effective was the psychological warfare programming, that the Argentine telecommunications authorities immediately commenced

jamming the station known as 'Radio Atlantico Del Sur' or Radio South Atlantic, and threatened anyone caught listening to the transmission with court martial.

We were able to follow the conflict on short wave via the BBC World Service which undoubtedly provided the most extensive coverage of the campaign. Unfortunately we were not able to receive the Argentine External Station — RAE, but the all-night Home Service on 6.030 MHz from Buenos Aires could be easily heard in Spanish.

We now know that the British were successful in recapturing the Falklands from Argentina but at a cost of 277 lives, the majority being at sea. The Argentines also lost heavily, over 1,000 killed and several hundred still unaccounted for. Economically, the cost to both nations was enormous, with Argentina coming off worse. Today, the Falklands have quietened down considerably, and the 'Kelpers' are trying to regain the peace and tranquility of before April, but the situation has altered, with large portions of the islands still being mined, and it is estimated that it could take 50 years or so to clear them of the debris and explosives left by the conflict.

As the conflict in the South Atlantic came to its conclusion, another hotspots erupted into warfare — the Middle East. Following the attempted assassination of its ambassador to the UK by Palestine terrorists, Israel invaded Lebanon and laid siege to Beirut, its capital wiping out PLO emplacements en route. The war of words heated up on shortwave, as the crisis deepened in intensity. The PLO radio transmitters of the 'Voice of Palestine' were destroyed. Kof Israel in Jerusalem were forced on to the defensive by the universal condemnation of Israeli actions, especially after the horrific massacre of innocent Palestinian refugees were discovered. The BBC World Service news broadcasts were the first ones to break with this significant development, and ironically the Voice of Lebanon—the voice of the Christian Falange was one of the last to admit that it had taken place.

Incidentally this station on 5.220 Mhz is reportedly back on the air once again, after suffering considerable damage in the fighting. The other Lebanese outlet — the quasi-religious Voice of Hope radio station, broadcast from an Israeli enclave under the control of Major Haddad, in what is known as 'Free Lebanon', which is virtually a separate state.

Now the multi-national peace-keeping contingent is in place, and the bulk of the PLO scattered throughout the Middle East, the Lebanese are getting back to rebuilding their nation after nearly a decade of continuous conflict. Yet, the BBC Monitoring Service reports that the Voice of Palestine is likely to be back on the air, from transmitters in Baghdad Iraq, very soon. So the war of words will continue unabated.

The other major development on shortwave has been the proliferation of the Over-the-Horizon Radar systems on HF over the past twelve months. With the Americans opening up an OTHR site in Moscow, Maine recently, it is now very common to be experiencing heavy QRM from these 'woodpeckers' hammering away on shortwave frequencies in the electromagnetic spectrum.

And talking of 'Spectrum' — the Radio Australia communications magazine, which up till now has been aired fortnightly has been aired on a weekly basis since the 7th November at the usual transmission times.

The United Nations' have designated 1983 as the International Year of Communications. I expect that there are several activities planned to celebrate this event, both in Australia and overseas. I am sure that 'Amateur Radio' will provide details of what's happening over the next couple of months.

Well, it remains for me to only wish everyone the compliments of the coming season, and hope that the New Year will bring you happiness and health to you and your family.

With best 73's — Robin VK7RH



QSP

ERITH ISLAND

Ken, VK3KGX, will be operating from Erith Island, in the Kent Group, Bass Strait, from 20th Dec to 25th Jan on 2, 10, 15 and 80 m (land on 20 and 40 m if he passes the November Morse plus 6 m if finances permit). Main rig is ICOM 320A. The island is normally uninhabited.

A group have permission to camp on the island each year. It is used for grazing cattle. Ken has been going there for the past 5 years but this is the first time he will have been on the air as an amateur.

SPECIAL PREFIX

A special event prefix will be used on the occasion of 35 years amateur radio in Syria. Four stations will be operating SSB using all the live bands 80, 40, 20, 15, 10 metres. The call signs are 6C35A, 6C35M, 6C35N, 6C35O. Operation will be for two periods.

— Saturday December 25 0300 UTC to — Sunday December 26 1300 UTC

— Thursday December 30 0300 UTC to Friday December 31 0800 UTC

Special QSL cards will be available, and can be claimed from PO Box 35 Damascus Syria by sending the QSL card with 3 IRC's and a self addressed envelope. As the number of amateurs in Syria is very small and taking into consideration the high cost of printing we sent to ask that all cards for this special event, sent via the QSL bureaus by accompanied by an equal number of IRC's.

10 METRES

At 3pm EDT Thursday 28th October, FCC released the major portion of the 10MHz band for use by amateurs in its jurisdiction. Effective immediately USA amateurs holding general advanced and extra class licences may use up to 250 watts input and A1 and F1 emissions in the band segments 10.100 to 10.109 and 10.115 to 10.150MHz.

These emissions include CW and RTTY operation, voice modes are not permitted. The segment 10.109 to 10.115 MHz is not available at this time because of daily use by a priority government radio service. Amateur stations must avoid interfering with stations in the fixed service, because the band is located on a primary basis to the fixed service and these stations have priority. The amateur allocation is on a secondary basis.

Bud VK4QV
AM

AR SHOWCASE



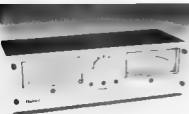
ACOUSTIC DISTURBANCE PROTECTOR

The Leemah LM 102601 Acoustic Disturbance Protector safeguards headset-wearers against potential loss of hearing caused by steady, impact or impulse noises by inhibiting high-level sound and attenuating undesirable frequencies, whilst increasing operator comfort and efficiency by offering a low idle noise and low distortion for operators between calls.

This unit is compact and features standard impedances and voltages, compatible with operator headset circuits and is easily installed in -24 VDC to -48 VDC circuits without modification to the existing equipment. Polarity reversal protection eliminates the possibility of damage caused by polarity reverse during installation.

The LM 102601 exceeds Osha standards for industry safety requirements and has an AGC circuit output of less than 85 dB SPL. Studs are provided for screw mounting on equipment panel or it may be secured by double-sided tape.

For further information contact: Sclar Distributors Pty. Ltd., 20 Shelley Avenue, Kilsyth 3137 Ph (03) 725 9577



NEW MODEL UHF POWER/SWR METER

The MALDOL HS460 SWR and Power Meter has just been released. This unit, which supersedes the model HS450 incorporates three power ranges (0-5 watts / 20

watts / 150 watts) and two meter indication of power and SWR. The frequency range is 130-500 MHz and the SWR Measuring Range is 1:1-1:3. It is fitted with M-type connectors, operates at 50 ohms impedance, is compact (220 (W) x 70 (H) x 110 (D) mm) and weighs only 1070 grammes. Accuracy is within $\pm 10\%$ on both Power and SWR functions. With the evergrowing popularity of UHF transceivers, the MALDOL HS460 is certain to find a ready market for checking transceiver output power and antenna systems. Further information may be obtained from Imark Pty Ltd., 187 Roden Street, West Melbourne, 3003. Phone (03) 329 5433

Fireman's Handbook

Electronics whiz, Dick Smith, is not resting from his grueling record solo helicopter flight but is breaking new ground in the publishing field.

Released this week is 'Dick Smith's Australian Radio Frequency Handbook' — a unique book on the newest and fastest growing hobby in the world.

Dick says Australians are rapidly joining the hobby of scanner radio listening and hearing, what has been up until now, 'secret radio'.

The hobby enables anyone to join in the excitement of fire crews racing to a city skyscraper, a jumbo jet obtaining clearance to land after an international flight, and even two-way telephone conversations from mobile telephones.

The listening possibilities using a scanner radio on the VHF and UHF bands are endless.

Dick said: "Obviously the average person can gain access to an incredible range of information on community happenings."

"Far from being concerned about people listening in on their transmissions, many law enforcement officers now feel that scanner radio use should be encouraged — if only for the direct assistance that people can give authorities."

"For example, imagine how many extra pairs of eyes are on the lookout for stolen cars — or how quickly news crews can be on the spot if they hear an emergency as it happens."

"I believe that responsible use of scanning receivers can only do the community good."

Dick's new book explains, in simple terms, every aspect of scanner radio listening, how to use a scanner receiver, when and what to listen to, and lists never before published information.

A comprehensive frequency directory is included and contains frequencies in use by a wide range of services and organisations.

Scanner radios are already being used extensively.

Police, SES, Bay Search and Rescue Groups, and Fire Brigades find them handy to keep track of various communications.

Scanners can also be invaluable for volunteer firefighters and farmers wanting to monitor local rural fire brigade channels for early alerts of fire outbreaks.

For further information telephonar Dick Smith (02) 888 3200.

Issued by Select Communications 18/10/82

LETTERS



Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

Moorabbin & District Radio Club
PO Box 88, East Bentleigh, 3165
4th October, 1982

Federal Secretary

Dear Sir,

Having been alerted to the facts surrounding the Geelong Amateur Radio Clubs entry in the John Moyle Field Day Contest, the Committee and members of Moorabbin & District Radio Club would like to return our first place certificate as we do not honestly deserve it.

Enclosed is a copy of an announcement put over the Victoria Division Sunday Broadcast by our President Mr. Ted Holmes, and we would appreciate it if this statement could be published in "Amateur Radio" magazine in the near future.

Trusting you will give this matter top priority.

Yours sincerely,
TREVOR HAINES
Secretary

THE JOHN MOYLE MEMORIAL CONTEST — 1982

For the information of those who were not at the General Meeting held at the Clubrooms on Friday 20th August, 1982, we reproduce below the text of an announcement which was broadcast on the following Sunday in reference to the above.

"This is Ted Holmes, VK3DEH, President of the Moorabbin & District Radio Club. Last Friday evening, 20th August at our General Meeting my attention and the attention of members was drawn to a letter addressed to the Editor of Amateur Radio from Barry Abley, Secretary of the Geelong Amateur Radio Club in reference to the John Moyle Memorial Competition held on 6/7th February, 1982. The matter was discussed at the General Meeting and a vote was taken on a motion proposed by Bill Yates (VK3SEB) and seconded by Alan Dobie (VK3AMD). This was to the effect that there is no doubt that GARC, by dint of a valiant and magnificent effort, scored far more points than we did with our Club station VK3APC.

It was also felt that due to circumstances outside the control of GARC they had been deprived of what was their due right, namely the receipt of the appropriate certificate as outright winners. Our Club considered that it would be inequitable for us to retain the certificate and it certainly gave us little pleasure to have it displayed in our Clubroom.

It was therefore unanimously agreed that the Committee would address appropriate letters to the Federal Executive and the Editor of Amateur Radio requesting that the award be given to GARC and returning the certificate which we received.

Hopefully, this will result in the right thing being done and the accolade being awarded to the station which really won the contest far and square.

May I add that in 1983 MDRCC will no doubt again enter the contest and it is to be hoped

that on that occasion the unfortunate situation which obtained in 1982 will not be repeated.

I thought it appropriate that this announcement should be made now, as Moorabbin Club is keenly interested in the promotion of good will and harmony with all amateurs, not only as individuals but as clubs or groups.

Nevertheless, in 1983 we shall do our best, as in previous years, to win the competition but hope to do so by scoring more points than anybody else, not by reason of an unfortunate error such as existed in 1982 and resulted in the true winners becoming the losers.

AR

Post Office Box 38,
Majilli, SA 5072

The Editor,
Dear Sir,

"JUST WHO IS ALLOWED TO USE REPEATER B". Last Sunday, October 17th after monitoring Repeater B for some time and noticing that it had been inactive for quite a while, I decided to make use of it. So I called CQ and had a short contact with a mobile and a bit later on I made contact with another mobile and, from our resultant conversation, I found out that my contact had only recently received his full call and that this was his first time on 2 (two) metres.

While the conversation was proceeding, I tried more than once to see if I could receive my contact direct (repeater reverse) without any luck, not knowing at the time that my contact was bypassing the repeater and was transmitting direct until someone came up and informed me of this.

However, while trying to explain repeater operation and then go over to a simplex channel was when all hell broke loose, (to coin a phrase) as firstly someone came up and angrily demanded that we "B—Y" well go to a simplex channel and this was followed by 2 (two) mobiles wanting to use the repeater. Remember, up to this time, that no one else had wanted to use the repeater. As for the 2 (two) mobile stations they finished up on channel 40 (146.000MHz) where they had a session about my location and me claiming that no one but new-comers to the band would talk to me as everyone else considered that I suffered from a very bad case of "VERBAL DIARRHOEA".

Granted I do not make as many contacts as I used to, as I have been spending most of my radio time in the listening mode, usually monitoring Repeater B.

Now I would hardly term making use of a repeater twice over a weekend when no one else was using it excessive. As for the "VERBAL DIARRHOEA" claim, I could not care less and if there are those that do not like talking to me then they need not do so, and it will not worry me the least bit, as I can find other things to do to pass time if need be. However, this was the "JOTA weekend" and I have no doubt that there were many in and attached to the scouting movement along with parents etc (including many "Potential Amateurs") listening to amateur transmissions including those taking place on the 2 metre band. I wonder just what anyone (non-amateur) on hearing the above events would have thought? Hardly good PR. Well enough said for now.

Yours Sincerely,
Graham J. Muirhead, VK5ZCM.

AR



QSP

FINGER IN THE SKY

The Cruising Yacht Club (CYC) was so impressed with amateur efforts during the Sydney to Rio Yacht Race, that amateur radio looks like competing with the commercial ship/shore networks. GYV KB2BF is currently running a Novice course at the CYC for yachtsmen aspiring to the 10, 15 and 80m bands.

from QUA SEP, 82

AR

Silent Keys

It is with deep regret we record the passing of—

Rev. R. GUTHBERLET

VK5 VRCS
Co-ordinator

Mr. T. HAMAR
Mr. T. KINZBRUNNER
Mr. T. W. STARKIE
Mr. K. W. WARDLEY

VK5HL
VK4JIK
4NW 1927
VK3IS

Obituaries

VIVIAN FREDERICK MAIDMENT
VK2VFM

Viv Maidment ex-VK2VFM died, still holding his military commissions, during a QSO on Sunday morning, 3rd October, 1982, aged 75.

Viv had been a devoted and active amateur, and was very popular on the Novice Bands over the past three years.

His first interest in radio communications began when he became an SWL member of the Marrickville Radio Club in 1927. When the club was disbanded due to lack of membership, Viv was presented with the club's wooden radio mast, which he still has standing at his home at Penhurst, supporting his HF antenna.

Throughout Viv's working life he earned his living servicing refrigerators, domestic radio sets and car radios, then, later, TV receivers.

His thirst for knowledge in the radio-TV industry led him to completing many training classes with the Marconi School of Wireles, always being at the early birds to attain his Certificate of Proficiency to keep abreast with the latest technology.

Due to the rapid rate of technical progress occurring in the electronics industry over Viv's working career, he decided to become an associate member of the IREI to further his knowledge. He remained a member up to the time of his passing.

Just prior to the passing of Viv's XYL, who had suffered a long illness, he prepared himself for the lonely years ahead — he commenced studying amateur radio to attain the NAACP.

With a little help from local amateurs Viv passed his NAACP exam at the first effort three years ago just after he lost his XYL. I am sure the fellowship of amateur radio comforted and assisted Viv to beat his loneliness.

I am proud and honoured to have been his first and last QSO and will not be the only one to miss his cheery voice "on air".

He is survived by his only son Ron (an SWL), Joy, his daughter-in-law, Linda and Greg, grandchildren.

Derick VK2AZS

AR

TOM. W. STARKIE

4NW 1927

Tom, who was a foundation member of the Toombul Radio Club, passed on at Talliboodga Nursing Home on 4th July, 1982, after a heart attack. He was born in 1906, the year of so many prominent VKA amateurs, and in 1926 to early 1930s he was a prominent and regular broadcast band operator, who used UV200 then UV201A and UX210 tubes with chemical rectifiers in the power supply, consisting of lead and aluminium plates in a borax solution. Tom had of late lived on Tamborine Mountain.

Peter VK4PJ

AR

CHANGE OF ADDRESS

If you have changed your address or if you intend shortly to change address —

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Do not leave this to be done when you pay your subscription at the end of the year.

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P.O. Box 150, Toorak, Vic. 3142

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* Please insert STD code with phone numbers when you advertise.

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- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142
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- Cancellations received after 12th of the month cannot be processed
- OTHER means address is correct as set out in the VWA current Call Book.

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Conditions for commercial advertising are as follows: The rate is \$15 for 4 lines, plus 52 per line for part thereof; minimum charge \$15 pre-payable. Copy is required by the first day of the month preceding publication.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Amidex Ferromagnetic Cores: Large range for all receiver and transmitter applications. For data and price list send 10¢ x 220 SASE to: R J & U S Imports, Box 157, Morfitt, NSW 2223 (No enquiries at all: 11 Macken St, Oakley, 2223)

CB Radios \$69; walkie talkies, short wave radios, military, outdoor, business, amateur, marine, repairs, RITV Siemens 100A printer \$120; base mc, \$45; ultrasonic alarm, \$35; all ham bands on a single 6 ft. whip, 1 B to 30 MHz, for base or mobile, \$300; aerials, installation, demonstrations, 40 ch. CB conversions, accessories, new rigs weekly. Bridge Disposals, 12 Old Plaza, opp. Bankstown Railway Station, NSW. All order service and all enquiries to 2 Griffith Avenue, Roseville 2069, or phone Sam VK2BVS, 7 p.m. to 9 p.m. only, on (02) 407 1088.

EXCHANGE — OLD

VINYL COVERED ALBUM of first day covers — Aug 79 to latest issue. Includes odd supplements and duplicates. Also some loose overpunches of mint stamps. Large album of single & multiple mint, and smaller album of used stamps — all Australian. Exchange for HF or VHF mobile rig. VK4XQ QTH.

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100M IC2A or similar 2in hand held synthesised Tx/rx. Small size a must. Also Dick Smith level II System 80 computer. Prefer Blue Ribbon or disk based system. Mike VK1VW Ph: (062) 45 3161 (BH), (062) 88 7225 (AH)

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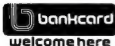
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Other popular Drake equipment from Elmeasco —

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| PS7S | 12V/15A Power Supply |
| SP7S | Speech Processor |
| L7 | 2kW 160-15m amplifier and PSU |
| L7S | 1.2kW 160-15m amp and PSU |
| MN2700 | 2kW 160-10m Tuner |
| DL300 | 300W Dummy Load |
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